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ABSTRACT

THIS COMPILATION OF RESEARCH IN AGRICULTURAL EDUCATION INCLUDES ABSTRACTS OF 82 STUDIES COMPLETED DURING 1968-69 IN 11 OF THE 13 STATES OF THE AMERICAN VOCATIONAL ASSOCIATION CENTRAL REGION. THEY ARE ARRANGED ALPHABETICALLY BY AUTHOR AND INDEXED BY SUBJECT. A LIST OF STUDIES IN PROGRESS IN 1969-70 IS ALSO INCLUDED. THE ABSTRACTS ARE ORGANIZED ACCORDING TO EACH STUDY'S PURPOSE, METHOD, AND FINDINGS. INCLUDED ARE MASTERS STUDIES, STAFF STUDIES AND DOCTORAL DISSERTATIONS. ALL STUDIES REPORTED ARE AVAILABLE FOR LOAN FROM UNIVERSITY LIBRARIES, DEPARTMENTS OF AGRICULTURAL EDUCATION IN UNIVERSITIES, AND STATE DEPARTMENTS OF VOCATIONAL AND TECHNICAL EDUCATION. STUDIES COMPLETED DURING THE PREVIOUS YEAR ARE ANNOUNCED IN RESEARCH IN EDUCATION, APRIL 1969 AS ED 024 831. (EDITOR/DM)

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Departmental Report No. 14

SUMMARIES OF STUDIES
IN
AGRICULTURAL EDUCATION
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AN ANNOTATED BIBLIOGRAPHY OF STUDIES IN AGRICULTURAL EDUCATION

The Department of Agricultural Education
College of Agriculture and Home Economics
The University of Nebraska
Lincoln, Nebraska 68503
December, 1969

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SUMMARIES OF STUDIES IN AGRICULTURAL EDUCATION

CENTRAL REGION

1968-69

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INTRODUCTION

This compilation of research in agricultural education includes abstracts of 82 studies completed during 1968-69 in 11 of the 13 states of the Central Region. This compares with 66 studies reported last year and 55 the year before. They are arranged alphabetically by author and indexed by subject. A list of studies in progress in 1969-70 is also included.

Abstracts of research completed in 1968-69 were reported by teacher education institutions and state departments of education in the region. All studies reported are available for loan from university libraries, departments of agricultural education in universities, and state departments of vocational and technical education.

This compilation of abstracts of research in agricultural education is an activity of the Research Committee of the Agricultural Education Division of the American Vocational Association.

James T. Horner
Central Region Representative
Research Committee
Agricultural Education Division
American Vocational Association

December, 1969

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SUMMARIES OF STUDIES, 1968-69

1. ALSAMARRAE, Hatam Ali, A Proposed Educational Program for Agricultural Development in Iraq. Dissertation, Ph. D., 1968. Library, The Ohio State University, Columbus.

Purpose. To develop an educational program for agricultural development in Iraq and to identify the best method for its implementation.

Method. Data were collected from official records, literature, and the writer's knowledge and experience gained through his career in the Department of Agriculture in Iraq.

Findings. Historical, cultural, political, social, economic, and educational changes and events were found to be important factors in determining and shaping the educational program proposed. Natural resources were important in the development of the program also. Two models for adoption and innovation were identified. Alternative methods of instruction for farmers were suggested.

2. ARNTSON, Eric Palmer, Level of Competency Needed by Vocational Agriculture Instructors to Teach Selected Agricultural Mechanics Skills and Abilities as Determined by Instructors and Former Students. Colloquium Paper, M. S., 1969, Department of Agricultural Education, North Dakota State University, Fargo.

Purpose. To determine the level of competence a vocational agriculture instructor should possess in selected areas of instruction in farm gasoline power mechanics and farm machinery mechanics as rated by them and by vocational agriculture graduates of the past ten years who are now engaged in production agriculture.

Method. Data were secured by questionnaire from vocational agriculture instructors in North Dakota and vocational agriculture graduates of the past ten years, presently in production agriculture. Both groups were asked to rate 47 skills, abilities, and/or understandings in farm gasoline power mechanics and 28 skills, abilities, and/or understandings in farm machinery mechanics as to the degree of competency needed by vocational agriculture instructors in North Dakota. The means and t scores for each item were computed. Spearman's coefficient of rank correlation was applied to the data and a t score of this determination was made.

Findings. Vocational agriculture instructors placed a higher numerical value on 39 of the 47 selected competencies in farm gasoline power mechanics and on 17 of the 28 selected competencies in farm machinery mechanics than did the graduates. Vocational agriculture graduates placed a higher value on 8 of the competencies in farm gasoline power mechanics and 11 of the competencies in farm machinery mechanics. A comparison of response differences between the two groups showed that 30 of the 75 were significant at the .05 level. Twenty were significant at the .02 level and 15 at the .01 level. Spearman's coefficient of rank correlation between the two groups was .7477 for competencies in farm gasoline power mechanics with a t score of 7.5528 and .7970 for competencies in farm machinery mechanics with a t score of 6.7284. The correlations of rank order were highly significant.

3. ASHLEY, Irvin Ester, Jr., Analysis of Opportunities for Paraplegics in Certain Ornamental Horticulture Occupations. Ed. D. Dissertation, 1968. Department of Education, University of Illinois, Urbana.

Purpose. The primary purposes of the study were to determine (1) whether or not paraplegics possess the physical competencies required for employment in the occupational area of ornamental horticulture, (2) whether or not certain ornamental horticulture activities could be performed by paraplegics from a wheelchair, and (3) whether or not paraplegics possess a realistic evaluation of their physical abilities to perform certain physical activities involved in ornamental horticulture occupations.

Method. Twenty paraplegics who were students at the University of Illinois or who were alumni of the University of Illinois were selected for participation in the study. Only those paraplegics with injuries to the spinal cord at or below the sixth thoracic vertebrae of the vertebral column were selected for participation in the study.

The twenty paraplegics rated their ability to perform ten selected activities in ornamental horticulture. A panel of ornamental horticulture judges rated the twenty paraplegics in the performance of these same activities. The correlated t-test was used to compare the self-evaluations by the paraplegics with the performance ratings by the panel of ornamental horticulture judges. The chi-square test and the Pearson product-moment correlations were also used to analyze data obtained from the twenty paraplegics studied.

Findings. Analysis of the data obtained from the self-evaluations by the twenty paraplegics studied regarding their ability to perform ten selected activities in ornamental horticulture and the ratings by the performance judges of the paraplegics' ability to perform these activities revealed that the twenty paraplegics studied did possess a realistic evaluation of their physical ability to perform the ten selected activities in ornamental horticulture. Age, longevity of disability and work experience after onset of disability appeared to be contributing factors to the competency of the twenty paraplegics to self-evaluate their physical ability to perform the ten selected activities in ornamental horticulture. The data also revealed that alumni and senior students possessed a more realistic evaluation of their physical abilities to perform the ten activities in ornamental horticulture than did juniors, sophomores, or freshmen.

Ratings by the performance judges of the ability of the twenty paraplegics to perform ten selected activities in ornamental horticulture revealed that the twenty paraplegics studied did possess the physical competencies necessary for performing the ten selected physical activities in ornamental horticulture.

Statistical correlations between selected personal data factors and the self-evaluation scores of the paraplegics studied revealed that age was the only correlation which approached significance at the .05 level of significance.

Based on the investigator's observations of the physical competencies displayed by the twenty paraplegics studied, on a visual examination of the paraplegics' performance scores, and on a perusal of the job descriptions available for certain jobs in the occupational area of ornamental horticulture, the investigator concluded that the types of job opportunities available to paraplegics interested in ornamental horticulture range from skilled labor to professional positions.

The information obtained from a limited survey of existing ornamental horticulture facilities in Champaign County and from a review of the literature on the design and specification of buildings to permit their use by the physically handicapped revealed that if some of the existing architectural barriers in ornamental horticulture occupations were eliminated, greater employment of the physically handicapped would be possible.

4. BEANE, Daniel C., Experimental Evaluation of Student Achievement in Vocational Agriculture Based on Instructor Knowledge and Media Used. Thesis, M. S., 1969. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to determine the relationship between instructors' knowledge of subject matter and their students' level of academic achievement.

Method. A sample of 48 schools was randomly selected from Iowa high schools offering an approved four-year program in vocational agriculture with an enrollment of nine to twenty-two students in each class and whose instructors had at least one year of teaching experience. Each of the schools was randomly assigned to one of the eight media treatment groups. The eight instructional media techniques were as follows: (a) audio-tutorial, (b) demonstration, (c) field trip, (d) prepared lesson plan, (e) single concept films, (f) transparency, (g) video tape, and (h) traditional (control).

A three-week teaching outline with specific objectives and references was developed for each of the four subject matter units as follows: (a) animal health, (b) commercial fertilizers, (c) small gasoline engines, and (d) farm credit. All of the schools in the project used the same reference materials during the experiment. A 60-item objective student pre-test and post-test was developed by the project coordinator for each of the subject matter units.

A 45-item test for instructors was also developed for each of the subject matter units. The instructors were placed in three equal sized groups: high, medium, and low based on their pre-test scores and differences between the pre- and post-test scores. The relationships between instructors' knowledge of the subject matter and student achievement were evaluated by the analysis of variance and t-test techniques.

Findings. The findings revealed that there were significant differences (at the .05 level of confidence) among the mean post-test scores of students grouped according to their instructors' knowledge of the subject matter. In the composite scores of the four subject matter units and in the animal health, commercial fertilizers, and farm credit units, the highest mean post-test scores were achieved by students whose instructors were in the medium group. In the small gasoline engines unit, the highest mean scores were made by students whose instructors were in the low group.

That instructors changed in their knowledge of the subject matter while teaching was indicated by highly significant (significant at the .01 level of confidence) t-values derived from the tests of differences between pre- and post-test mean scores. The differences in post-test scores among students grouped according to their instructors' change in knowledge were nonsignificant for composite scores and in the animal health, commercial fertilizers, and farm credit units. However, in the small gasoline engines unit there was a significant difference (significant at the .05 level) in post-test mean scores among students grouped according to their instructors' change in knowledge. The highest mean score in small gasoline engines were made by students whose instructors were in the low instructor group.

The data revealed small differences among students' mean scores grouped according to their instructors' knowledge of the subject matter and the form of instructional media used by the instructors to teach the unit. However, when these means were tested by analysis of variance, nonsignificant interaction F-values were derived revealing that there was no significant interaction between instructors' knowledge and instructional media used to teach the unit.

5. BISHOP, Douglas D., Effectiveness of Prior Exposure to Performance Objectives as a Technique for Improvement of Student Recall and Retention. Ph. D. Dissertation, 1969. Library, The Ohio State University, Columbus.

Purpose. To measure the influence of explicitly stated performance objectives upon immediate recall of knowledge and upon retention of knowledge when ninth grade vocational agriculture students were made aware of the performance objectives prior to the instructional unit being taught.

Method. A 2 x 2 factorial design (Nonequivalent Control Group Design) was used to study the main effect and interaction effect of two independent variables (prior exposure to performance objectives and separate instructional units) on two dependent variables (recall of knowledge and retention of knowledge). Eight intact ninth grade vocational agriculture classes were assigned randomly to one of the four treatment groups. A total of 88 students participated in the study. Scores on the dependent variable were analyzed by analysis of covariance. Covariates used in the study were pre-test score on the criterion test, I.Q. score, and cumulative grade point average.

Findings. Students who received prior exposure to performance objectives failed to achieve significantly higher scores on either the post-test for immediate recall of knowledge or the re-test for retention of knowledge. Similarly, instructional content had no statistically significant effect on the student's ability to recall or to retain knowledge. Finally, there was no significant interaction between prior exposure to performance objectives and the separate instructional units. It was recommended that further research be conducted to test the feasibility of the contention that greater efficiency and more extensive mastery of curriculum material will result from exposing students to explicitly worded performance objectives.

6. BLEZEK, Allen, A Study of the Full-Time Horticultural Occupational Opportunities for a Two County Area of Southwestern Iowa. Thesis, M. S., 1969. Library, The University of Nebraska, Lincoln.

Purpose. To determine the horticultural employment opportunities in two southwestern Iowa counties. To determine employment opportunities by job category and to assess selected employment characteristics of horticultural businesses.

Method. A total of fifteen businesses in Fremont and Page counties were classified as receiving a major portion of their income from retailing or wholesaling of horticultural products. Data were collected by personal interview from 100 percent of the firms in the defined population.

Findings. The fifteen horticultural firms estimated an annual need for 40 new employees during each of the next five years. The greatest need is for 23 workers annually in nursery production and seven annually in greenhouse non-supervisory positions. Of the 815 persons presently employed, 521 or 64 percent were men and 294 or 36 percent were women; 99.5 percent of the total workers were in the 36 to 60 year age group, with 75.4 percent of the men in the 46 to 60 year age group. Eighty percent of the employers preferred that new workers hold a high school education, and would prefer a higher education level vocational training if available.

7. BOBBITT, John Franklin, A Comparative Study of Two Concurrent Work-Education Models in Agriculture. Ed. D. Dissertation, 1969. Department of Education, University of Illinois, Urbana.

Purpose. The primary purposes of the study were to determine (1) whether or not there were significant differences between the concurrent work-education model without school released time and the concurrent work-education model with school released time regarding the attitudes that agricultural occupations instructors, pupils enrolled in the non-farm agricultural occupations course and school administrators in schools offering non-farm agriculture occupations have developed toward the supervised agricultural experience program and (2) whether or not there were significant differences between the concurrent work-education model without school released time and the concurrent work-education model with school released time regarding certain activities of agricultural occupations instructors and their pupils who were enrolled in non-farm agricultural occupations courses.

Method. Pupils enrolled in non-farm agricultural occupations courses, agricultural occupations instructors, and school administrators in 212 schools in the state of Illinois that had non-farm concurrent work-education programs in agricultural occupations were the population for the study. The sample of schools offering either the concurrent work-education model with school released time or the concurrent work-education model without school released time was selected by matching the schools using one model with schools using the alternative model. Schools were matched on the population of the town in which the school was located and the enrollment in the high school. Twenty-eight schools were selected with 14 schools offering concurrent work-education with school released time and 14 schools offering concurrent work-education without school released time.

Instruments were developed by the investigator to determine the activities of pupils and of agricultural occupations instructors participating in the two concurrent work-education models. Instruments were also developed by the investigator to determine the attitudes toward the supervised agricultural experience programs of pupils, instructors and school administrators involved with either the concurrent work-education model with school released time or the concurrent work-education model without school released time.

The data were collected by the investigator during group sessions with the participants in the study. Research hypotheses were formulated and tested with a one-way analysis of covariance for significance at the .05 level.

Findings. Analyses of the data obtained from agricultural occupations pupils revealed there were no significant differences between the two concurrent work-education models regarding the attitudes of pupils toward the supervised agricultural experience program. There were no significant differences between the two models regarding the attitudes of instructors toward the supervised agricultural experience program. There were no significant differences between the two concurrent work-education models regarding the attitudes of school administrators toward the supervised agricultural experience programs.

There were no significant differences between the two concurrent work-education models on 28 of 38 activities engaged in by agricultural occupations instructors. Also there were no significant differences between the two concurrent work-education models on 29 of 44 activities engaged in by agricultural occupations pupils.

The concurrent work-education model with school released time and the concurrent work-education model without school released time offer similar experiences and should be retained as options in agricultural occupations.

8. BOGLE, Telford Roy, The Importance of Selected Factors for Careers in Agriculture. Thesis, M. S., 1968. Library, The Ohio State University, Columbus.

Purpose. To identify how youth perceived the importance of abilities, characteristics, skills, background and formal training for various agriculture career areas and to determine the level of knowledge of youth regarding salary and working conditions in agriculture career areas.

Method. A questionnaire was administered to a selected group of knowledgeable persons representing the various agriculture career areas and to 20 percent of the high school seniors taking the Agriculture Competitive Tests administered by The Ohio State University. All of the resource persons and 71 percent of the students returned the questionnaire.

Findings. Students perceived the importance of the various factors in a similar fashion as resource persons. There were several areas of information in which students lacked understanding and knowledge. Students did not place as much importance on the value of a farm background as did the resource persons. Youth perceived technical training behond high school as having more importance than a college degree for all of the career areas except education.

The skills of writing a letter, communicating within a small group of people, and being able to convey a warm feeling of friendliness were very important in all career areas. The various abilities and factors were rated to be of more importance to farm youth than to non-farm youth. Students taking college preparatory courses did not realize that a college degree was essential for those entering agricultural education careers.

Students realized that the amount of inside and outside work required for the career areas, but they did not realize that hours may be long compared to a forty hour work week and that work schedules were flexible rather than a five day work week. Students have a good understanding of the salary schedules during the early years of employment except for farming and meat or produce merchandising. Students over estimated income from farming. Students have a lack of knowledge of the salary levels of various career areas after five years of employment.

9. BOKHARI, Khalid Hasan, A Role-Performance Model for Vocational Agriculture Curriculum. Dissertation, Ph. D., 1968. Library, The Ohio State University, Columbus.

Purpose. To develop a role-performance model for curriculum development in vocational agriculture. Specific objectives were to describe (1) a method of deriving educational purposes, (2) how educational purposes can be used for the selection and organization of learning experiences, and (3) procedures for establishing student performance criteria.

Method. An analysis of curriculum theory and design was undertaken to synthesize various concepts into a role-performance model. Philosophical foundations, psychological considerations, and sociological bases were used in developing the proposed model. Using the field crop production area of a high school program of vocational agriculture, a trial application of the model was made in which the judgments of 79 selected vocational agriculture teachers were ascertained. Teachers were asked to indicate if they teach the proposed performance capabilities, the level of performance students should demonstrate, and in which year instruction for the various capabilities should be provided.

Findings. Student role-performance capabilities should be developed for comprehension, problem solving, and manipulation behaviors. As a basis for selecting learning experiences, students' comprehension, problem solving, and manipulative performance capabilities were divided into the following interrelated behavior categories: identify, relate, explore, analyze, select, act, and evaluate. These behavior categories provide a basis for the organization of learning experiences in terms of sequence and continuity. The proposed model suggested that standards, termed levels of performance, should be established against which the success of an instructional program could be measured.

Most teachers accepted the proposed performance capabilities as instructional purposes and were able to indicate the level of student performance expected. Teachers would place instruction to develop capabilities concerning crop science at the ninth and tenth grade level, crop protection at the tenth and eleventh grade level, and crop mechanics and crop management at the eleventh and twelfth grade level. It was concluded that vocational agriculture teachers would accept student comprehension, problem solving, and manipulative capabilities developed according to the role-performance model as useful guides for curriculum development.

10. CAMERON, Walter A., Remote In-Service Vocational-Technical Teacher Education for Beginning Teachers. Dissertation, Ph. D., 1969. Library, The Ohio State University, Columbus.

Purpose. To determine the effectiveness of three remote techniques of teacher education for providing in-service education on three selected teaching skills.

Method. Fifty-seven beginning teachers of health occupations education, trade and industrial education, and technical education in Colorado comprised the population of the study. A sample of thirty-nine teachers was randomly selected and assigned to one of the following three equal-size treatment groups: instructional model with videophone feedback, instructional model with video-mail feedback, and instructional model with video-self-evaluation. The teaching skills used in the study were introducing a lesson, questioning, and demonstrating a manipulative skill. For each teaching skill the pre-test and post-test was a video-taped teaching of a five minute lesson. A panel of two experienced educators rated the teaching skill performance on all pre-tests and post-tests. A satisfaction scale and a reaction questionnaire were administered to the 36 participants completing the experiment. The experiment, using the pre-test-post-test control group design, lasted eight weeks.

Findings. An analysis of covariance computed on the data revealed no statistically significant differences among the three treatment groups in regard to teaching performance on the composite of the three teaching skills or on any single teaching skill. An analysis of variance on the satisfaction data showed no difference among the three groups on the expressed level of satisfaction with the three techniques used. As indicated by a paired t-test, all groups improved their post-test teaching performance over their pre-test teaching performances for the composite of the three skills.

11. CHAUBEY, Braj Kishore, Factors Influencing the Quality of Teaching in Vocational Agriculture. Dissertation, Ph. D., 1968. Library, The Ohio State University, Columbus.

Purpose. To identify factors and conditions influencing the quality of teaching of high school students in vocational agriculture, to determine the importance of these factors, and to identify educational procedures for improving the quality of teaching in vocational agriculture.

Method. Opinions and suggestions regarding eight factors believed to influence quality of teaching were obtained by questionnaire from all vocational agriculture teachers in Ohio, from the most successful 10 percent of the vocational agriculture teachers, and from a jury of experts in vocational agriculture.

Findings. The jury of experts, the most successful teachers, and all teachers agreed on the relative importance of the following as factors influencing the quality of teaching in vocational agriculture: student selection, supervised occupational experience programs, use of teaching equipment for classroom instruction, and adequate time for preparation for teaching. The three groups of respondents did not agree on the relative importance of the following as factors influencing the quality of teaching in vocational agriculture: development of an up-to-date program of instruction, providing an annual budget for teaching resources, time required for extra-school duties, and academic potential of students in vocational agriculture.

There was a significant relationship between the rankings of the factors influencing teaching by the jury of experts and the most successful teachers. There were not significant relationships between all teacher's and the jury's rankings of the factors or between all teacher's and the most successful teacher's rankings of the factors influencing the quality of teaching in vocational agriculture.

Teachers reported that improvement in guidance and counseling, additional instructional materials, inservice education, and providing finances for more effective organization of programs should be provided to improve the quality of teaching in vocational agriculture.

12. COLTRAIN, Wayne D., The Involvement of Kansas Vocational Agriculture Teachers in Farming. Masters report, 1969. Library, Kansas State University, Manhattan.

Purpose. To determine the involvement and use that Kansas vocational agriculture teachers made of their own farms in 1968. The special objectives were: (1) what percentage of the teachers lived on farms, (2) how much of their time the farm required, and (3) how much use was made of their farms for vocational agriculture instruction.

Method. A questionnaire mailed to the 179 vocational agriculture instructors in Kansas was analyzed for the above purposes. One hundred sixty-four, or 92 percent, were returned. The information has been compiled in tables as well as summarized.

Findings. Fifty-five percent of the Kansas vocational agriculture teachers returning the survey have had from one to five years of farm experience since high school graduation. Thirty percent owned farms and an additional twenty-six percent rented land. Fifty percent of the teachers were of the opinion that a teacher should teach and farm at the same time. The preponderance of those living on a farm felt that it made them a better instructor. Less than half of those presently on farms actually used these same farms for field trips for their students. Forty-six percent of the teachers living on farms spent less than ten hours per week working at home. Fifty-eight percent of these same instructors listed the need for supplementary income as the primary reason for living on their farm.

13. CRAWFORD, Harold Reid, Factors Affecting the Establishment of Young Farm Operators in Iowa and Implications for Agricultural Education. Dissertation, Ph. D., 1969. Library, Iowa State University, Ames.

Purpose. The universe of interest for this study was all farm operators in Iowa who were between the ages of 18 and 30 inclusive as of December 31, 1968. The basic purposes were to ascertain the factors which influenced the establishment in farming, to estimate the number, to determine the needs for agricultural education, and to determine the characteristics of young farm operators in Iowa.

Method. Data were collected by personal interview from 307 young farmers in the 56 townships of 20 randomly selected counties stratified by economic areas of Iowa. The estimated number of young farm operators was 8.54 per township, 149.09 per county, and 2726 per economic area. The Western Livestock Area had 26.9 percent of the young farmers, whereas only 14.6 percent were in the Southern Pasture Area. A population adjustment factor was used for each area which resulted in an estimated 13,630 young farm operators in Iowa.

Findings. The present mean age of all respondents was 26.2 years of age. Young men who started to farm in 1965-1968 were older when they began farming than those who started to farm in 1956-1960. Nearly three-fourths of the young men were high school graduates, but only 3 percent were college graduates; however, 32 percent had some post high school education.

Relatives contributed in various ways toward the establishment of young farm operators. Capital and machinery were mentioned more often than any other type of assistance received, and parents ranked first among all relatives as sources of assistance. Over one-half of the respondents lived with their parents their first year of farming.

Respondents had a mean of two occupations prior to the time they began farming, and 42 percent worked off their farms during their first year of farming. The number of days worked off farm decreased as they became established in farming. Three major sources of finance for the first year's farming operation were the young farmer, his father, and a lending agency.

About three-fourths of the respondents began farming as an individual operator and one-fourth as a partner. A small percentage farmed both as individual operators and in partnership. The number of operators in partnerships decreased from the first to the current year of farming. The division of labor, operating expense, and profits of partnership operations were quite variable. Young farm operators were operating farms which were about equal in size to the average size of all farms in Iowa in 1968. Two-thirds of the respondents raised hogs, 50 to 60 percent had feeder cattle, 25 percent had dairy, 25 percent had beef cows, 15 percent had sheep, and 15 percent had poultry.

Findings revealed a definite need for organized educational programs for young farm operators. Current participation is minimal. High school vocational agriculture teachers, area school personnel, agricultural extension personnel, and Land Grant University faculties have a responsibility in meeting these needs.

14. CROMER, Chalmers A., Procedure for Determining Vocational Needs Through Community Analysis (USOE Grant). Staff Study, 1968. Nebraska Research Coordinating Unit for Vocational Education, Department of Agricultural Education, The University of Nebraska, Lincoln.

Purpose. To describe a model for determining vocational education needs in a local community.

Method. Data were gathered by a study of 20 Nebraska communities in 1965, 1966, and 1967.

Findings. Some major objectives of local community analysis are to: (1) evaluate existing vocational courses and determine needed additional offerings, (2) focus attention on the development of quality comprehensive community programs, (3) summarize occupational opportunities within a community, (4) assist local schools in establishing the type of vocational offering which will generate a desirable curriculum balance, (5) determine the need for supplemental education and training or retraining, and (6) supplement local data with area and state data to project a regional picture of employment opportunities. The document content includes: (1) philosophy, (2) purpose, (3) objectives, (4) benefits, (5) model, (6) a 7-step outline for determining vocational education needs, (7) determining multi-county vocational education needs, and (8) problems in compiling area data. The appendices contain sample forms for use in a survey.

15. DILLON, Roy D., Seminar for Preparation of Professional Personnel for Vocational-Technical Education--A National Seminar for College Deans (USOE Grant). Staff Study, 1969. Department of Agricultural Education, University of Nebraska, Lincoln.

Purpose. A National Seminar was conducted on June 23-26, 1968, at the Nebraska Center for Continuing Education, attended by selected Deans of Colleges responsible for preparing professional vocational educators. Seventy participants, representing 41 states, attended.

Method. Participants developed recommendations concerning organizational and operational strategies for resolving critical vocational education personnel supply and demand problems, and recommended ways to implement recent and pending legislation. An interim report of Conference proceedings and recommendations was prepared and distributed to all participants.

Findings. A one year follow-up revealed local actions planned or being implemented in several states. Actions included planning committees started within and between teacher education agencies, graduate program revisions, state-wide teacher education council organization, some new programs of vocational-technical teacher education started, and several changes in existing undergraduate teacher education programs.

16. DUKE, Edward Leroy, Job and Educational Status of Vocational Agriculture Students from the Thief River Falls, Minnesota, High School During the Period from 1955-1965. Colloquium Paper, M. S., 1969. Department of Agricultural Education, North Dakota State University, Fargo.

Purpose. To determine the 1968 job and educational status of former students who, having completed one or more years of vocational agriculture, graduated from the Thief River Falls, Minnesota High School during the period of 1955-1965.

Method. Names and addresses of the graduates were obtained from high school records, parents, relatives, and friends. Questionnaires were sent to 139 graduates and 96 responded. The instrument was designed to reveal the following: the first job or educational status following graduation; occupational status in June, 1968; highest level of formal education attained; and the present (1968) geographic location of the graduates.

Findings. Of the 96 vocational agriculture graduates reporting their first jobs following graduation, 52 percent engaged in agricultural occupations; 5 percent served in the armed forces, while 35 percent enrolled in various educational programs.

In June, 1968, more than 57 percent of the graduates were in agricultural occupations; 30 percent were in non-agricultural occupations; 3 percent were in the armed services; and 9 percent were in school.

Approximately 13 percent received some college education in agriculture. Eighteen percent of the graduates completed some collegiate study in fields other than agriculture. Twenty-five percent completed post-secondary vocational technical training and 20 percent completed in-service training programs. Twenty-four percent had no formal education beyond high school.

At the time of the study nearly 80 percent of the graduates were living in Minnesota and 27 percent lived in the district in which they attended high school.

Nearly 60 percent of the graduates entered into the labor market immediately upon graduation. Of those entering the labor market after graduation, more than 90 percent were in agricultural occupations. In 1968, 65 percent of those employed were in agriculture.

17. EBBERS, Larry H., Relationship of Future Farmers of America Leadership Activities to Participation in Student Activities at Iowa State University. Thesis, M. S., 1968. Library, Iowa State University, Ames.

Purpose. The purpose of the study was to determine the relationships that exist between participation in FFA activities, high school activities, parents' activities, and selected high school or university factors with regard to participation in university activities.

Method. The study involved a sample of 400 Iowa State University students. Two hundred students who had had two or more years of FFA experience were compared to 200 without FFA experience. Within each group of 200 students, 100 were enrolled in colleges other than agriculture, (colleges of engineering, science and humanities, and veterinary medicine). Each of these groups contained 50 seniors and 50 juniors. These students were surveyed and activity participation data were evaluated by a panel of judges to obtain participation scores for all students responding to the questionnaire. Analysis of variance, coefficient of correlation, and mean scores were used to statistically treat the data after it had been coded and transferred to IBM cards.

Findings. Students with FFA experience had a higher total university activity mean participation score (78.34) than did those without FFA experience (58.48). The total student average was 69.29. Residence activities made up the largest portion of an individual's activity score followed by curriculum and departmental activities, all university or honorary activities, and religious activities in the order given. Students with FFA experience enrolled in the College of Agriculture had the highest total university participation score of any group. This group had a mean score of 89.25.

Students living in fraternities had the highest participation mean score (99.27) for residence groups. The university married community students had the lowest mean score (31.44) for these groups. Married students who had had FFA experience and who were enrolled in the College of Agriculture had higher mean participation scores (66.23) than all other married or single students without FFA experience. Those with FFA experience regardless of their college enrollment had the highest mean scores for all high school activities.

A positive and highly significant correlation (.35) was found between a student's total high school activity score and his total university activity score. Activity scores of parents were found to be positively and significantly related to their son's total high school activity score (.36).

18. ERPELDING, Laurence H., Jr., Interest in the National Future Farmer Magazine as Expressed by Future Farmers of America with Different Occupational Goals. Master's Thesis, 1969. Library, Kansas State University, Manhattan.

Purpose. To determine the expressed levels of interest in selected editorial content of the National Future Farmer Magazine by Future Farmers of America members who stated different occupational goals, and to investigate whether there was a difference in the expressed levels of interest among FFA members who stated different goals.

Method. The data for this study were obtained by use of an opinionnaire which was personally delivered and collected. The population consisted of FFA members who were students in the sixteen vocational agriculture departments located within a forty mile radius of Manhattan, Kansas. Eight vocational agriculture departments were randomly selected and the FFA members who were students in those departments and were present on the day the instrument was administered comprised the sample.

Findings. The study considered only how FFA members with different occupational goals expressed their degree of interest in the fifteen selected portions of editorial content.

No significant difference was found among those members in the sample in regard to their preferences for the fifteen different areas of editorial content.

19. ETLING, Arlen Wayne, A Proposed Educational Program in Vocational Agriculture for the Instituto Rural Metodista of Montero, Bolivia. Master's Report, 1969. Library, Kansas State University, Manhattan.

Purpose. To explore the barriers and opportunities to establishing a program of vocational agriculture education at the Instituto Rural Metodista of Montero, Bolivia. Secondly, recommendations to exploit the barriers and opportunities to establishing such a program were developed.

Method. A historical research of education in Bolivia, agriculture at the area of Montero, Bolivia, and the American Farm School of Thessaloniki, Greece, was carried out. A comparison was made between the features of the Greek school and the potential of the Instituto Rural to develop a set of recommendations. A review of the literature on the specific areas reported was facilitated by additional visits by the investigator to both Montero, Bolivia, and Thessaloniki, Greece. Also included in the report is a method of implementing the findings.

Findings. A list of problems in developing countries which affected education included increasing population and a high proportion of the people engaged in agriculture. A shortage of funds and supplies, the lack of a necessary intra structure, low federal priority given to rural areas, and a low regard of rural people for the schools were other problems cited. A three year program of vocational agriculture is developed in the report. The program divides the educational experiences into four areas: classroom instruction, shop skills and practice, supervised experience on the school farm, and extracurricular activities of a young farmer club. The first year was recommended to be instruction in general agriculture, the second year features crops and soils and the third emphasizes livestock.

Specific recommendations were to formulate objectives, recruit students, emphasize development of Bolivian teachers and improve the existing facilities. Also suggestions for the curriculum, the teaching approach, resources and supplementary activities were made.

20. FANNING, Terry Dean, A Study of Conditions Which Affected the Choice of Either an Agricultural Education Major or Other Agriculture Major. Master's Report, 1969. Library, Kansas State University, Manhattan.

Purpose. The basic concern of this study was to ascertain what relationship existed between the background factors and the choice of a college major of certain groups of students in the college of agriculture. This study was prompted by the lack of sufficient numbers of students graduating from the agricultural education curriculum to meet the demands.

Method. Of the subjects accepted for this study, 31 were former vocational agriculture students enrolled in agriculture education, 24 were former vocational agriculture students enrolled in other agriculture majors, and 15 were other agriculture majors who had no experience in vocational agriculture. A questionnaire containing eleven major headings was administered to each of the subjects mentioned.

Findings. An analysis of data from the questionnaire revealed that each one of the three groups studied had similar backgrounds of farm experience, college experiences of changing majors and parental influences. The main differences between the groups were individual differences on certain intrinsic and economic factors influencing the choice of a major.

Some of the recommendations of the students as to what could be done in high school to help others in the selection of a college major were as follows: (1) tell of job opportunities and a fuller explanation of the college curriculum, (2) have college representative visit the schools, (3) encourage students to start thinking earlier in high school about college or occupations, and (4) closer work with students by the high school counselor.

21. FIELD, Ralph G., Occupational Opportunities and Training Needs for Youth for On-Farm and Off-Farm Agricultural Employment in Selected Indiana Counties. Dissertation, Ph. D., 1969. Library, Purdue University, Lafayette, Indiana.

Purpose. The purposes of this study were (1) to determine manpower needs in jobs needing competencies which could be taught in vocational agricultural programs, (2) to secure information about the job opportunities that are or may be available on the farms and in off-farm agricultural opportunities in a five county area in Indiana, (3) to list competency areas needed for employment in the identified jobs with employer ratings, and (4) to aid in planning new programs in agricultural education.

Method. Data were secured from a stratified random sample of 100 agricultural businesses employing individuals needing agricultural competencies and 150 operators of farms by trained vocational agricultural instructors through personal interviews.

Findings. Results of the on-farm survey indicate a .9 percent projected increase in employment from 1968 to 1973 with an annual entry need of 459 employees for the five counties. The off-farm survey indicated a 1.2 percent projected increase in employment from 1968 to 1973 with an annual entry need of 674 employees. The combined entry need for on-farm and off-farm agricultural employment of 1133.69 was an average of 49.3 per school corporation in the five counties.

Individuals surveyed indicated that slightly over 15 percent of the individuals employed were in positions that required a post-high school training and an additional 10 percent should complete a college degree.

No significant difference was found between competency items divided into divisions by knowledge (understanding of a principle), skills (ability to use), and use of tools within each of the listed subject matter areas. A significant difference was found between the subject matter areas based upon the mean of the competencies listed within each subject matter area.

The subject matter area of Agricultural Mechanics rated as the area with the greatest need for training for both on-farm and off-farm entry employment. The area of Animal Science received the lowest average rating for both employment areas.

A total of 185 individual competency items were evaluated for each job title identified in on-farm employment and 93 individual competency items for each of the 64 identified job titles in off-farm employment.

22. FOG, Peter A., Agricultural Mechanics Curriculum in Minnesota High Schools. Thesis, M. A., 1969. Library, Institute of Agriculture, University of Minnesota, St. Paul.

Purpose. To determine the influence of certain factors on the amount of agricultural mechanics taught in Minnesota high schools. The ten factors studied were: (1) the number of agricultural mechanics credits earned in college by the instructor, (2) the number of men employed by the high school agriculture department, (3) the total number of tools available in the department, (4) the utilization of the shop by other departments and for other school purposes, (5) the total square feet of floor space available for teaching agricultural mechanics, (6) the number of square feet of floor space available for each student in the largest class, (7) the instructor's total years of teaching experience, (8) the location of the school by regions in the state, (9) the total student enrollment in vocational agriculture, and (10) the number of tools available in each of the nine major instruction areas of agricultural mechanics.

Method. A survey instrument was mailed to all the vocational agriculture departments in the state. The study was based on statistics reported from 200 schools or 71 percent of the vocational agriculture departments in the state of Minnesota. Data were entered on code sheets and processed by computer at the St. Paul Campus Computer Center.

The mean weeks of instruction were used to determine the increase or decrease of instruction in agricultural mechanics when related to each of the factors studied.

Findings. An increase in college credits earned by the agricultural mechanics instructor increased the number of weeks of instruction from 45 weeks for those with no credits to 61.9 weeks for those with the most credits earned.

The number of men employed by the department did not materially increase the weeks of instruction when comparing departments employing one man to departments employing two men.

The weeks of instruction increased greatly as the total number of tools increased. The range was 40.6 weeks with the fewest tools to 71 weeks of instruction in schools with the most tools.

The weeks of instruction showed a marked increase when the shop was used only for agricultural mechanics instruction as compared to sharing with industrial arts departments. The weeks of instruction varied from 54 when the shop was shared to 65.7 when the shop was used independently by the agricultural mechanics department.

The schools with the greatest total free floor space taught an average of 65.8 weeks as compared to 25.5 weeks in schools with the least floor space.

Schools with 111 to 150 square feet of floor space per student in the largest class taught 63.4 weeks of agricultural mechanics compared to 55.6 weeks in those schools with 12 to 20 square feet of floor space per student.

Schools reporting enrollment of 75 to 165 students in vocational agriculture taught an average of 71 weeks of agricultural mechanics as compared to 55 weeks in schools with enrollments of 15 to 47 students.

In the individual instruction areas of plumbing, carpentry, farm power, farm electricity, farm machinery and concrete work, greater tool numbers reflected an increase in the average weeks of instruction in each of the areas. Increasing the number of tools in cold metal, hot metal, and soil and water management areas did not significantly increase the weeks of instruction.

The instructor's years of experience in teaching did not significantly change the amount of agricultural mechanics taught.

23. GADDA, Hilding W. and POLLMANN, James, South Dakota Agricultural Off-Farm Occupational Opportunities and Training Needs. Staff study, 1969. Department of Agricultural Education, South Dakota State University, Brookings.

Purpose. Objectives were to ascertain (1) the number and characteristics of businesses employing workers needing competencies in the field of agriculture; (2) the number of agricultural workers presently employed, (3) the agricultural off-farm occupational opportunities with reference to numbers needed, job titles, and remuneration, (4) the educational, experience background, and age requirements for new workers, (5) the nature of services performed by persons in most-needed job titles, and (6) in-service education desired. Guidelines for developing and conducting instructional programs in off-farm agricultural occupations were also formulated.

Method. The population was limited to 1878 off-farm agricultural businesses in South Dakota, identified through the use of a commercial credit directory as doing an annual gross volume of business in excess of $20,000. The response rate was 25 percent. Data were collected by means of mail questionnaires to employers who indicated a need for workers required to possess competencies in the field of agriculture.

Findings. Opportunities for workers trained in agricultural competencies far exceed the supply of such workers. More than 2,485 such off-farm agricultural workers will be needed in South Dakota in the 5 year period 1968-72. Forty-six percent of the firms anticipated from one to four workers each, and another 20.5 percent plan to hire from five to fourteen. Processing, grain-feed-seed, farm implements, agricultural chemicals and fertilizers, and general farm supplies are the types of businesses which will employ 80.3 percent of the off-farm agricultural workers, in that order of need. More than 22 new job titles will be added by businesses in the next five years. Employers predict that 26.3 percent of all new agricultural workers will hold jobs under new saleswork titles. Mechanics will represent 13.4 percent of all new workers, and more than one-third of all new workers will be needed in the field of agricultural mechanization, exclusive of sales and management personnel. Most employers consider a farm background as either essential or desirable.

24. GISH, Gary Dean, The Development of Basic Agricultural Mechanics Skills by Building a Small Project. Master's Report, 1969. Library, Kansas State University, Manhattan.

Purpose. The purpose of this study was to compare the small project method of instruction for agricultural mechanics with the drill method of skill development. The primary objective was to determine the difference in the improvement of skill development by implementing two methods of instruction.

Method. The students in one class of vocational agriculture were used in this study. The students were given an opportunity to select one of two small projects (one in arc welding or one in farm carpentry). The selection of the project placed them in either of two groups. Each group was made up of two sub-groups such as arc welding project or arc welding drill group. The same lesson was taught to all of the arc welding students as well as a similar arrangement for the farm carpentry group.

Students in each group were given a pencil and paper as well as performance tests in each subject area. Post-tests were administered after the instructional phase. The data gathered from these tests were used in determining the amount of improvement scored by the various groups. Three criterion factors were used to determine the equality of the groups. These were: (1) intelligence quotient, (2) the students' grade point averages, and (3) the students' scores on the pre-test. After reviewing these data, the writer assumed that the differences between the two sub-groups were insufficient to hinder the results of the study.

Findings. The results from the pre-test and post-test indicated that there was no relationship between I.Q. and mechanical ability. The data showed that neither of the groups excelled in all of the skills tested. There were no differences in the improvement of the performance of the members of the groups that could be attributed to the instructional method.

25. GOODE, Wayne E., Manpower and Training Needs of Employees in Independent, Cooperative, and Company Owned Retail Fertilizer Distribution Businesses. Thesis, M.S., 1969. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to determine the employment opportunities and training needs of those employed by independent, cooperative, and company owned retail fertilizer businesses in Iowa.

Method. The population sampled and analyzed in this study consisted of 866 Iowa retail fertilizer licensed dealers drawn from the population and stratified into three equal retail groups--independent, cooperative, and company owned fertilizer businesses.

A questionnaire was developed to obtain data from the manager and an employee selected by the manager, from each of the retail businesses. The information concerning manpower needs was obtained from the manager and competencies important in retailing fertilizer were obtained from both the manager and an employee. The number of businesses responding in the final sample were 57 independent, 58 cooperative, and 60 company owned stores. These returns constituted a 73 percent response.

Findings. The 175 businesses had a total of 1,002 persons employed in 1968 in the six job classifications. The managers anticipated a need for 1,236 men by 1971, or an approximate increase of 23 percent. The independent retailers needed a total of 86 men, the cooperatives needed 105 men, and the company owned stores needed 43 men. The greatest need for manpower by the three types of businesses, collectively, was in service and maintenance. These future needs represented an increase of approximately 42 percent by 1971 over those employed in 1968. The second greatest need was in the "other" job classification in which a combined need of 67 men, or an increase of 31 percent was reported. The next greatest combined need was in the area of fertilizer sales where the three business types indicated a need for 51 men, or an increase of approximately 30 percent.

The differences between the mean score for competence needed and competence possessed in the 32 agricultural competencies were .44 for independent store managers, .60 for cooperative managers, and .43 for company owned store managers. These data indicate a greater training need in the agricultural competencies by cooperative business managers than by managers of other types of businesses.

The five competencies needed most by all managers were: (1) weed, insect, and disease problems and their control, (2) convince operator and owner to use a sound fertilizer program, (3) recognize safety precautions and practices in handling fertilizer materials and equipment, (4) complete the fertilizer sale to the farm customer, and (5) make recommendations to customers regarding proper use of fertilizers and assist customers in keeping a fertilizer history on their farm.

The five competencies most needed by the employees were: (1) recognize safety precautions and practices in handling fertilizer materials and equipment, (2) recognize plant food efficiency in growing crops, (3) weed, insect, and disease problems and their control, (4) convince operator and owner to use a sound fertilizer program, and (5) interpret soil test results.

An analysis of five different employee job classifications by nature of work performed indicated differences between the mean scores for competence needed and possessed as follows: .53 for "sales," .95 for "clerical," .88 for "fertilizer handling, delivering and mixing, and loading," .67 for "service," and .40 for "management." All of the employees in the different job classifications indicated a different competency as most needed.

26. HARTOG, Edward Claus, Development of a Method to Determine Educational Content of Farm Supply Store Management. Thesis, Ph. D., 1969. Library, University of Minnesota, Minneapolis.

Purpose. To determine the managerial activities actually performed by managers of retail farm supply firms and to determine the relative importance of the managerial activities for the successful operation of the firm.

Method. An instrument designed to collect descriptive information and ratings of 191 managerial activities was developed, pilot tested, and used to collect the data. Four hundred twenty-four general managers of retail farm supply firms in Minnesota completed the mailed data forms. Managerial activities were analyzed by type of organizational structure and type of firm. A one-way analysis of variance design was used to determine activities with equal means (common activities) and unequal means (unique activities). Activity scores were cluster analyzed to form groups of activities. Relationships between managerial clusters and (1) managerial success, (2) size of firm, and (3) years of managerial experience were studied.

Findings. Retail farm supply firms were small stores averaging 6.71 employees and 2.1 departments per firm. The average annual sales per firm was $799,200. Importance ratings for the managerial activities ranged from 2.73 to 1.20 and a 3 point scale. When organizational structure was used as a blocking variable, thirteen stable clusters of activities composed of 106 of the 191 activities were formed. When clusters were formed by type of firm, thirteen different clusters occurred. Managerial success was related to clusters of activities associated with (1) financial reporting, and (2) business objectives. It was recommended that further use of the behavioral task format be used to study managerial behavior.

27. HEMP, Paul E., Vocational Horticulture Specialty Programs for Secondary Students. Staff Study, 1968. University of Illinois, Urbana.

Purpose. To promote, develop, and evaluate instructional programs in landscape and grounds maintenance at the secondary level.

Method. Pilot programs were established in two Illinois high schools in September, 1967. Staff members from the University of Illinois helped the pilot teachers develop course outlines and supervised experience programs. Monthly visits to the pilot schools were made by the research staff to help pilot teachers implement the instructions programs and to observe and evaluate program development procedures.

Findings. Two program patterns were developed and tested. One school conducted the two-year program without a greenhouse or other laboratory facility. Students were involved in placement-employment assignments during April and May of their first year of enrollment and during September, October, April, and May of the second year of enrollment. In the other pilot school a greenhouse was constructed and used for laboratory experiences. Students were involved in a cooperative education during the second year of enrollment.

Occupational surveys conducted in both communities showed a need for training workers for landscape and grounds maintenance programs. Based on the limited experience gained in the two pilot schools during a two-year period of time, the following recommendations have been made: (1) schools planning to offer vocational programs in landscape and grounds maintenance should provide a school greenhouse and other laboratory facilities to prepare students for business placement and to provide a place for practical instruction during the months when placement is not available, (2) an advisory council composed of representatives from industry should be organized before the program is started, (3) students should be identified by using agriculture interest inventories, and (4) traditional time requirements established for cooperative education programs cannot be followed in landscape and grounds maintenance programs without reducing the educational effectiveness of placement-employment.

28. HERRING, Donald Robert, Guidelines for Organizing and Operating Multiple Teacher Departments of Vocational Agriculture. Dissertation, Ph. D., 1969. Library, The Ohio State University, Columbus.

Purpose. To develop guidelines for use in organizing and operating multiple teacher departments of vocational agriculture. The specific objectives of the study included developing and evaluating tentative guidelines, determining the characteristics of successful multiple teacher departments and the teachers who conduct them, and identifying the factors teachers believed to be associated with the successful operation of multiple teacher departments.

Method. State supervisors of agricultural education identified 156 teachers of vocational agriculture and 156 administrators to participate in the study. A tentative list of guidelines, modified and refined by a reviewing committee, became the basis of a mailed survey instrument. A five-point scale was used by the teachers and administrators to appraise the importance of each guideline. Of the 312 instruments mailed, 279 (89 percent) were returned with usable data.

Findings. The data revealed a trend toward not only increased numbers of multiple teacher departments of vocational agriculture but also toward departments staffed with larger numbers of teachers.

The majority of the teachers in successful multiple teacher departments would be expected to have the following characteristics: over 30 years of age; at least six years of vocational agriculture teaching experience; several years of tenure in present department; and possessing the Master's degree. The majority of successful multiple teacher departments would be expected to have the following characteristics: of multiple teacher status less than 10 years; located in high schools with an enrollment over 600 students; an average high school vocational agriculture enrollment of 130 students; an adult farmer program; and facilities consisting of at least two classrooms, office space for each teacher, a school farm, and an agricultural mechanics shop with over 2500 square feet of floor space.

Sixty-four of the 75 guidelines evaluated were rated by both teachers and administrators as being of considerable importance and would be useful in organizing and operating multiple teacher departments of vocational agriculture. Administrators, in general, favored a more formal approach to handling departmental affairs than did teachers. Teachers felt more strongly than did administrators the importance of tenure and experience as criteria for selecting a department chairman, the need for adequate time in the department chairman's schedule to enable him to coordinate and administer the department, and the need for teachers to be involved in the selection of an additional or replacement teacher.

A few of the guidelines were considerably more important to both teachers and administrators working with departments with three or more teachers than to those teachers and administrators working with departments with only two teachers. Those guidelines included the designation of a department chairman, the assignment of teachers to major areas of the vocational agriculture program, and the procedures followed in the employment of an additional or replacement teacher.

Good interdepartmental staff relations, competent staff, adequate facilities and equipment, support of school administration, and effective planning are the factors which teachers feel to be most important in the successful operation of multiple teacher departments.

29. HOSKEY, Marvin R., Competencies in Soybean Production Needed by Farmers. Thesis, M.S., 1969. Library, Iowa State University, Ames.

Purpose. The purpose of the study was to determine the competencies that should be included in instructional programs in the area of soybean production for students of agriculture.

Method. A ten-member panel, which consisted of outstanding soybean production specialists, formulated a list of 24 understandings and 28 abilities needed by soybean producers. The list was used in a questionnaire which was submitted to 147 Master Soybean Growers and members of adult evening classes in agriculture throughout the state of Iowa. Also, members of two adult evening classes in each of the six supervisory districts were submitted questionnaires. The respondents were asked to rate the degree of competence that they possessed in each competency. Ratings were on a five-point scale (0-4) with four meaning very much competence and zero meaning no competence. Other personal information was requested for use in stratifying the respondents. Usable questionnaires were received from 107 evening school participants and 102 master growers.

Findings. The five most needed understandings and the four most needed abilities, based on the competence needed mean scores of the master growers, were the understandings of (1) the role of cultivation and herbicides in weed control (3.50), (2) the effect of depth of planting on emergence and yield (3.39), (3) the importance of timing in all operations (3.34), (4) the effect of herbicide carryover (3.31), and (5) the importance of a seed test for germination (3.29); and the abilities to (1) adjust machinery to minimize harvest damage and loss (3.53), (2) evaluate and select proper varieties as related to yield, lodging, maturity, insect, and disease resistance (3.47), (3) safely handle insecticides (3.41), and (4) choose most profitable method of marketing soybeans (3.37). The respective scores for these same competencies for the adult farmer class members were: 3.25, 3.09, 3.09, 3.12, 3.09, 3.40, 3.31, 3.15, 3.29, and 3.07. Abilities with mean scores of 3.0 or above for competence needed were (1) inoculate soybeans properly, (2) establish a realistic yield and cost goal, (3) determine soil types and how to manage them, (4) take a soil test, (5) interpret soil test results, (6) recognize nutrient deficiency symptoms, (7) determine when and how to prepare a good seedbed, (8) set tillage equipment (plow, disc, cultivator), (9) calibrate the planter for soybeans, (10) identify major soybean insects and select chemicals for their control, (11) determine when damage warrants the use of chemicals, (12) recognize disease symptoms, (13) identify weeds and select chemicals to control them, (14) evaluate merit of new technology in soybean production, and (15) keep and analyze enterprise records.

The respondents in both groups of farmers felt that they possessed considerably less competence in soybean production than they needed. The findings indicate a need for training in all 52 competencies with greater emphasis on some than on others. The findings should form a basis for instruction in soybean production in vocational agriculture classes for high school students, for young and adult farmers, in area vocational-technical schools, and in the College of Agriculture extension and resident instruction programs.

30. HOTHEM, G. Wayne, Attitudes Toward Competition in the 4-H Program in Carroll County, Ohio. Thesis, M.S., 1968. Library, The Ohio State University, Columbus.

Purpose. To compare the attitudes toward competition in the 4-H program of 4-H members, their parents, and 4-H advisors.

Method. An attitude scale was developed and validated with a group of 4-H Club members who were divided into a competitive and non-competitive group based on their 4-H participation and experiences. Using the 4-H members in Carroll County, Ohio, their parents, and the 4-H advisors as the populations of the study, a random sample of each group was drawn. Data were collected through questionnaires. Seventy-six percent of the 4-H members, 65 percent of the parents, and 91 percent of the advisors returned questionnaires.

Findings. Girl 4-H members were more competitive than boys. Older members indicated a stronger desire for competition than did younger members. All groups, members, parents, and advisors indicated that age and abilities should be considered more in competitive activities.

The two reasons most often mentioned by members for joining a 4-H Club were to learn a project or skill and to have fun. Parents wanted their children to join a 4-H Club to have the experience of working together, to learn a project or skill, and to gain self-confidence and responsibility.

Members ranked 4-H activities and project work highest and preferred more emphasis on these activities during club meetings. Parents ranked project work and the development of leadership, self-confidence, and responsibility highest. Parents indicated a preference for more project work at meetings and better trained advisors. Members, parents, and advisors stated that more emphasis should be placed on the member doing the best job he or she is capable of doing. Older members seemed to prefer compulsory grading of projects more than younger members.

31. HUMPHREY, Fowler C., The 1969 Riverdale Communication Workshop--An Evaluation of an In-Service Training Program in the North Dakota Cooperative Extension Service. Colloquium Paper, M.S., 1969. Department of Agricultural Education, North Dakota State University, Fargo.

Purpose. To evaluate a communication workshop conducted as part of the in-service training of new employees in the North Dakota Cooperative Extension Service. Specifically, to measure attitude and information change about certain communication concepts as a result of the workshop exposure.

Method. Prior to a week-long communication workshop, 32 new employees of the North Dakota Cooperative Extension Service were given a pre-test to determine information level and attitude toward subject matter to be covered during the workshop. The pre-test was composed of a 40 question true-false test and an attitude measuring device called a semantic differential. Attitude was measured toward 14 communication concepts covered during the workshop. Participants were administered the same booklet at the end of the workshop and again three weeks later. The data were statistically analyzed for mean, standard deviation, t scores and range.

Findings. There was a significant knowledge gain about communication during the workshop. There were attitude changes toward all but one of the 14 communication concepts. Three of the changes were significant (at the .05 level), two of them in the positive direction and one in the negative direction. The concept showing negative attitude change showed a significant increase in information gain. The two concepts showing significant positive attitude change seemed to be more associated with attitude formation than change, as they represented new information to most of the workshop participants. No significant change in attitude occurred during the post-workshop period. Data from the mail-in booklets administered three weeks later showed that information level declined yet remained significantly above the pre-workshop level.

32. JOHNSON, Cecil Heyward, The Identification of Teacher Opinion Leaders: An Element in a Change Strategy for Agricultural Education. Dissertation, Ph. D., 1968. Library, The Ohio State University, Columbus.

Purpose. To gain insight and understanding of the opinion leadership phenomenon as an element of a change strategy for agricultural education. The specific objectives of the study included developing a means of identifying opinion leaders and investigating the personal and social characteristics of those teachers identified as opinion leaders.

Method. The study was based on data received from 272 teachers of vocational agriculture in South Carolina, representing 97 percent of all vocational agriculture teachers who were teaching at the time the study was conducted. Group interviews were used to gather data. Teachers were placed into opinion leader and peer categories on the basis of the sociometric technique of identifying opinion leaders in eleven areas of the vocational agriculture program. The self-designating and key informant techniques of identifying opinion leaders were also utilized.

Findings. Conclusions with attendant implications that applied primarily to programs of state supervision in agricultural education were drawn from eight alternative hypotheses that were accepted. Opinion leaders were significantly older, experienced, and innovative than their peers. Opinion leaders were significantly higher salaried, had attained a significantly higher education level, exhibited a significantly greater degree of social participation and held significantly more professional education offices than did their peers. There was a significant positive correlation between the sociometric and key informant techniques of identifying opinion leaders among teachers of vocational agriculture.

There was no significant difference in the number of different vocational agriculture teaching positions held by opinion leaders and their peers; there was no significant difference in the amount of their own funds invested in professional growth by opinion leaders and their peers. Opinion leaders were not significantly more cosmopolite than their peers. There was no significant difference in the number of professional education and technical agriculture publications read by opinion leaders and their peers. Opinion leaders were not significantly more satsified with their jobs than their peers, and there was no significant difference in conformity to social system norms on innovativeness of opinion leaders and their peers. There was no significant correlation between the sociometric and self-designating techniques of identifying opinion leaders.

33. JOHNSON, Russell R., Competencies in Corn Production Needed by Farmers. Thesis, M.S., 1969. Library, Iowa State University, Ames.

Purpose. The purposes of the study were: (1) to determine the competencies needed by farmers in corn production, (2) to determine the relation of years of farm experience, corn acreage, educational attainment, and economic area to the degree of competence needed and possessed by two samples of Iowa farmers, and (3) to establish guidelines for planning instructional programs to meet the educational needs of present and prospective Iowa corn growers.

Method. A list of 49 competencies needed for success in corn production was compiled by consulting with 12 specialists in corn production and management. A questionnaire was sent to a sample of 180 master corn growers and 360 randomly selected farmers in Iowa. The farmers were asked to evaluate on a five-point scale the degree of competence that they needed and possessed in each competency. Useable questionnaires were received from 110 master corn growers and 82 random sample farmers.

Findings. Both groups of farmers had higher overall competence needed scores than possessed scores. The master corn growers had slightly higher scores than the random sample farmers for both competence needed and possessed.

The competencies which had the widest differences between competence needed and possessed scores for both groups of farmers were understanding of (1) the future's market, (2) the role of trace elements, (3) the hybrid variety differences in resistance to disease and insects, (4) the effect of stress on corn growth at different stages of development, (5) the role of NPK; and the ability to (1) recognize disease symptoms, (2) identify insects, (3) recognize major plant food deficiency symptoms, (4) evaluate merit of new technology, and (5) select proper chemicals for insect control. These competencies need the most emphasis in educational programs.

As years of vocational agriculture instruction increased for master farmers, the competence needed scores decreased and the competence possessed scores increased. Vocational agriculture had no relationship to these scores of random sample farmers. The 37 respondents in the two groups of farmers with 3 to 4 years of vocational agriculture had higher overall competence possessed scores than the men with 1 to 2 years of vocational agriculture.

The results of this study indicated that all 49 competencies are needed for successful corn production. Both master corn growers and random sample farmers rated their competence possessed much lower than competence needed. These competencies should provide the foundation for instructional programs related to corn production and management in high school vocational agriculture classes, adult and young farmer classes, area vocational-technical programs, and land grant college courses in corn production.

34. KHAN, Ansar Ali, An Analysis of the Improvement of Quality Instruction Programs for Cooperative Extension Personnel in Ohio. Dissertation, Ph. D., 1968. Library, The Ohio State University, Columbus.

Purpose. To determine the attitude and understanding of participants and nonparticipants toward the effectiveness of a program designed to improve the quality of instruction of Cooperative Extension personnel.

Method. Respondents designated as participants were extension personnel who had attended one of a series of two-week workshops on the improvement of instruction. Data collected from participating and nonparticipating extension personnel included the extent to which they were using the teaching methods and educational practices taught during the workshops, attitudes regarding the value of the workshops, cognitive knowledge of educational practices, age, level of education, and years tenure in the Cooperative Extension Service. Data were collected through instruments mailed to respondents. Ninety percent of the respondents returned useable instruments.

Findings. The workshops had enabled participants to use a greater number of approved methods of teaching and educational practices during their educational programs than nonparticipants. The workshops had helped participants to improve their ability in utilizing the educational practices more effectively. The workshops had not helped the participants to such a degree that they could demonstrate a higher cognitive knowledge than nonparticipants. The participants had a more favorable attitude toward the value of the workshops than nonparticipants.

The older (50 years or above) and the younger (less than 30 years) respondents obtained almost the same cognitive knowledge scores whereas the middle age (30-49 years) respondents scored higher than the younger as well as the older respondents. The older respondents had a more favorable attitude toward the value of the workshops than the younger respondents.

The formal education level of the respondents was not related to cognitive knowledge scores. The formal education level of the respondents was not related to their attitude toward the value of the workshops.

The experience of the respondents in the Cooperative Extension Service did not influence their cognitive knowledge scores. The experience of the respondents in the

Cooperative Extension Service was not related to their attitude toward the value of the workshops. Respondents in higher positions had higher cognitive knowledge scores than respondents in lower positions. Respondents' position in the organization did not influence the attitude of the respondents toward the value of the workshops.

More than 50 percent of the respondents were using more than half of the approved methods of teaching and educational practices during their educational programs. The participants were more regular in attending in-service training workshops and had attended a greater number of in-service training workshops than nonparticipants.

35. LESKE, Gary Warren, An Investigation of Differences Between In-Service Teachers of Vocational Agriculture and Ex-Teachers of Vocational Agriculture. Thesis, M. A., 1968. Department of Agricultural Education, St. Paul Campus, University of Minnesota, St. Paul.

Purpose. To identify differences between in-service teachers of vocational agriculture and ex-teachers of vocational agriculture in Minnesota which may contribute to or predict the loss of in-service teachers.

Method. The sample included 113 University of Minnesota agricultural education graduates who entered teaching for the first time between March of 1960 and July of 1965. The first phase involved gathering available file data. Three major areas of information were considered: grade point averages, standardized test scores, and information on the Personal Inventory for Entering Students. The second phase involved a mail questionnaire designed to secure selected personal and occupational information, opinions, and attitudes. Twenty-seven ex-teachers and seventy in-service teachers returned the questionnaire. The chi-square test and the t-test were used where they were appropriate means of determining significant differences.

Findings. Significant differences between the two groups were identified and the respective data suggested the following information. Proportionately more of the ex-teachers had (1) expressed a desire to be in a position other than teaching ten to fifteen years after entering college, (2) felt reasonably or absolutely certain of their decision to major in agricultural education, (3) felt reasonably or absolutely certain of their decision to teach, (4) taught classes outside of the vocational agriculture area, (5) received seven or more job offers during the two years before the study, (6) reported their student teaching experience was very encouraging, (7) expressed the desire to have spent a shorter period of time student teaching, and (8) rated the supervision during student teaching very adequate. Proportionately more of the in-service teachers had (1) rated the vocational agriculture teacher as well accepted by the faculty and (2) felt that assistance from the Agricultural Education Division of the Minnesota State Department of Education was adequate or very adequate.

Other findings which were not statistically significant were judged worthy of consideration. The mode number of annual visits received by the ex-teachers was zero visits from the State supervisory staff, teacher training staff, and fellow vocational agriculture instructors. The average in-service teacher spent 55.7 hours per week on the job and the average ex-teacher spent 59.2 hours per week on his present job. The two most important factors for both groups in the decision to major in agricultural education were "the opportunity to work with favorite subject" and "qualifies for work in many other agriculturally-related fields." Ex-teachers rated the latter factor most important.

36. LIFER, Charles W., An Evaluation of Self-Learning Centers in Adult Education. Dissertation, Ph. D., 1969. The Ohio State University, Columbus.

Purpose. To determine the extent to which personnel in an urban business would view agricultural films during their lunch hour; to ascertain their reaction to the approach; and to determine the extent to which they would learn from this informal self-learning approach.

Method. Data were collected from employees of the Nationwide Insurance Company's home and regional offices in Columbus, Ohio. The pre-test consisted of background data and a cognitive learning scale. The post-test consisted of background data, a cognitive learning scale, and respondents' reactions to the use of films in urban business settings. The home office was used as the experimental group where the films were shown; the regional office was used as a control group which did not have access to the agricultural films.

Findings. The following conclusions were made. The use of self-learning centers in urban businesses requires concentrated publicity to attract a substantial viewing audience. Adults in informal settings will watch films during their lunch hour if they are made aware of the topic, date, and time of showing in advance. Women in urban businesses prefer to watch home economics films, while men prefer viewing films relating to "lawn practices," "controlling lawn and garden insects," and "lawn mower safety."

There was no evidence that adults had a significant gain in knowledge from viewing films.

Adults employed in urban businesses prefer to view films during their lunch hour over before or after work. Adults employed in urban businesses prefer that films be available for their viewing for one week for optimal viewing opportunities. Adults working in large urban business settings prefer films which are six to ten minutes in length, while adults employed in smaller more suburban business settings prefer films which are eleven to fifteen minutes in length. Adult urban business audiences are not familiar with The Ohio Cooperative Extension Service.

37. MAGISOS, Joel Hans, An Analysis of Factors Associated with Perception of Role by State Supervisors of Vocational Education. Dissertation, Ph. D., 1968. Library, The Ohio State University, Columbus.

Purpose. To develop a basis for understanding the relationships between change orientation of state supervisors of vocational education and selected individual, intraorganizational, and extraorganizational factors. The specific objectives were to determine the perception of role by state supervisors and to analyze the relationship of the selected factors with this perception.

Method. Data were gathered from secondary sources and from personnel in eight state divisions of vocational education randomly selected from two size-strata of 31 states qualified for the study population because of involvement in two previous studies. Of 224 state division personnel in the eight-state sample, 85 percent responded to a mailed, two-part questionnaire. The first section of the instrument elicited responses to questions regarding the supervisors' personal backgrounds, educational preparation, occupational experience, and communication behavior. The second section of the instrument required that respondents rank five sets of eight indicator items which described dynamic or tractive supervisory behavior. A dynamic-tractive differential index was computed for each participant and this index served as the measurement of the dependent variable with which 63 independent variables were tested.

Findings. State supervisors in the study were found to value dynamic supervisor behavior higher than tractive behavior. Differences in dynamic-tractive differential indexes were observed between and among job-level categories and state supervisory staffs. Those at higher job-levels were found to be more dynamic.

Comparisons were made between 58 of the more dynamic supervisors and 55 of the more tractive supervisors who fell within the extreme one-thirds of the total distribution across the dynamic-tractive continuum. More dynamic supervisors were found to have significantly more formal education, more college degrees, more returns to college after entering professional education, and a higher perception of their salaries relative to others in the nation in the same job categories. More dynamic supervisors were found to be females, have lived in smaller communities during elementary and high school education, and to work currently in state divisions without personnel selection policies.

It was generally concluded that state supervisors valued dynamic supervisory behavior, but differed within and between job-level categories and state supervisory staffs. This had implications for supervision selection, assignment, and role for planned change in vocational education. The few significant variables were in the individual category, specifically in the educational preparation group. This had implications for pre-service education, in-service education, educational leave policy, and personnel selection policy. Further effort will be necessary to identify variables and combinations of variables associated with change orientation.

38. MANNEBACH, Alfred James, The Effectiveness of Structured Occupational Experience for Instructors of Agricultural Occupations. Dissertation, Ed. D., 1969. Library, University of Illinois, Urbana.

Purpose. To determine the effect of an intensive four-week experimental educational program, involving structured, on-the-job, occupational experiences in agricultural firms, plus related classroom instruction, on the behavior of instructors of agricultural occupations.

Method. The population for the study consisted of Illinois high school and junior college instructors of agricultural occupations who were conducting concurrent work-education programs in agricultural firms and who applied to enroll in the experimental educational program, offered in the 1968 summer session by the Agricultural Education Division, University of Illinois. Two independent random samples of eleven high school instructors were selected from the twenty-two high school instructors who applied. One group of eleven high school instructors was designated by lot as the experimental group while the other group was designated as the control group. The experimental group of high school instructors and all seven junior college instructors who applied were accepted and completed the program.

Prior to the termination of the program, the high school experimental and control groups of instructors completed three instruments to evaluate partially the experimental educational program. The instruments completed were: (1) a test of knowledge, (2) an attitude scale, and (3) a card-sort inventory. The junior college instructors enrolled in the program were pre-tested and post-tested on the same instruments. In addition, evidence consisting of objective ratings and descriptive statements concerning the effectiveness of certain aspects of the program was collected from the participating agricultural businessmen and the high school and junior college instructors who completed the program.

Findings. Of the nine hypotheses formulated for the study, one yielded significantly different results at the .05 level. The mean post-test scores of the junior college instructors completing the experimental educational program were significantly higher than their mean pre-test scores as measured by the test of knowledge used. No significant differences were found based on the other hypotheses formulated for the study. The findings of no significant differences may have resulted because only experienced instructors, who were conducting programs of non-farm agricultural occupations, were involved in the study.

The overall reaction to the program, as rated by the participating agricultural businessmen and the instructors enrolled, was excellent to good. The overall ratings and written reactions indicated that the experimental educational program was meeting a critical in-service need of instructors of agricultural occupations.

39. MARSH, Harold E., Factors Related to Occupations of Male Graduates of the New Providence Community High School. Thesis, M.S., 1968. Library, Iowa State University, Ames.

Purpose. The purposes of this study were to find where graduates are located and what they are doing; and to study the relationship of certain geographic, economic, educational, and socio-economic factors to their present occupations.

Method. The sample consisted of 184 male graduates from the classes of 1935 through 1964. Returns were received from 90.0 percent of the graduates who were mailed questionnaires. Information was also obtained from the permanent records of the school. The factors of home, high school education, post high school education, and occupational characteristics were studied to determine their relationship to the occupations of the male graduates.

Findings. Of the graduates studied, 47.8 percent had remained in Hardin County, the county which contains New Providence Community High School, 27.2 percent had migrated outside the home county but were still in Iowa, and 25.0 percent had left the state.

Migration of the graduates showed significant correlations with occupation of parent, education of father, education of mother, semesters of college, semesters of vocational agriculture (a negative correlation), and high school grade point. Significant relationships were not observed when migration was compared with occupation of the graduate, present income, and ownership status of the parent.

When parents had more education, graduates received higher incomes, achieved higher scholastic rank, attended college longer, and were in occupations ranked higher in the census classification of occupations. Graduates reported their occupations as follows: 22.7 percent were professional and technical, 35.2 percent were farmers, 13.6 percent were managers and proprietors, 4.0 percent were clerical, 5.1 percent were operatives, and 0.6 percent were in service occupations. Respondents who were employed in farming, in agriculturally related work, and in professional and technical occupations felt a significantly greater need for additional vocational-technical training than graduates in other occupations.

When the agricultural relationship of the graduates' occupations were considered, graduates who were farmers tended more to be sons of landowners and tended to have received more vocational agriculture training than had men in agriculturally related occupations and nonagricultural occupations. Significantly more of those farming came from home farms of 240 acres or more while those in agriculturally related fields and nonagricultural work tended to come from smaller farms.

Graduates ranked the educational areas which had been the most valuable to them in the selection of an occupation in the following order: (1) vocational agriculture, (2) mathematics, (3) communicative skills, (4) physical sciences, (5) social studies, (6) commercial studies, and (7) biological sciences.

40. McCARLEY, Walter William, An Experimental Study to Evaluate the Effectiveness of an Individualized Instructional Method and the Lecture-Discussion Method for Teaching Vocational Agriculture Classes. Dissertation, Ph. D., 1969. Library, Michigan State University, East Lansing.

Purpose. To evaluate the effectiveness of an individualized instruction-laboratory method as compared to the lecture-discussion-laboratory method of instruction as measured by: (1) student achievement, (2) student interest in agriculture and (3) student academic rank; (4) to construct a student personality profile and determine the extent of variation in the student personality profiles for the two methods of instruction.

Method. Four selected Michigan high schools with a total of 138 junior and senior vocational agriculture students participated in this study. Each teacher taught one class by the lecture-discussion method and one class by the individualized instructional method. The researcher prepared a forty-six page guidebook and assembled grain grading slides that were used by the individualized instructional group; lesson plans and grain grading specimens of equivalent materials were prepared by the researcher for the lecture-discussion group. Both groups used the same grain grading laboratory equipment and grain grading samples, and they took identical pre-test and post-test (Part A - paper and pencil and Part B - laboratory performance).

Student agricultural interest was assessed with the Pennsylvania Vocational Agriculture Interest Inventory; student overall academic rank was secured from the local high school counselor, and student personality was assessed with the Guilford-Zimmerman Temperament Survey. Students in the individualized instructional group completed an evaluation form for the unit. One lesson for each method of instruction was tape recorded. A workshop for the cooperating teachers was held to provide teachers with mimeographed instructions and to answer any questions on the procedure to use.

Findings. The individualized instructional method was found to be significantly better than the lecture-discussion method of instruction. It was found that students acquired more knowledge and skills using a combination of psychomotor and cognitive skills than when using cognitive skills alone. Students in the individualized instructional group were more enthusiastic and tried harder, regardless of their academic rank. Student agricultural interest was related to student achievement when the assignment required the use of psychomotor and cognitive skills. Student academic rank was related only for cognitive skill requiring a mathematical calculation. The student personality profile revealed that there was no significant difference in the mean percentile rank of eight of the ten personality variables measured by the Guilford-Zimmerman Temperament Survey. The two personality variables, general activity and personal relations, were significantly greater, at the .05 level, for the lecture-discussion method of instruction. The student evaluation of the individualized instruction unit clustered toward the favorable end of the semantic differential scale. The tape recordings yielded no audio evidence that teachers deviated from the instructions presented at the workshop.

41. McKINNEY, Floyd Lee, Citizens Perceptions and Professional Educators Expectations Regarding the Vocational Citizens Advisory Committee. Dissertation, Ph. D., 1969. Michigan State University, East Lansing.

Purpose. 1. To identify differences in the perceptions of citizens, vocational teachers, vocational administrators, and school administrators concerning the functions and operation of the vocational citizens advisory committee, and 2. to identify relationships between certain functions and/or operations as perceived by the citizens and as expected by the school administrators, vocational teachers, directors and coordinators and selected background variables of the respondents.

Method. Data were obtained from citizens and professional personnel in six comprehensive Michigan high school districts which have participated in an Evaluation Systems Project sponsored by Michigan State University. Eighteen school administrators, 54 vocational educators, and 182 citizens returned questionnaires designed to obtain perceptions or expectations of the function and/or operations of the vocational citizens advisory committee. The analysis included the use of chi-square and one-way analysis of variance. Differences between perceptions of citizens and expectations of the different groups of professional educators which are significant at the .05 level are presented in the findings. The study did not report those functions or operations of the vocational citizens advisory committee where consensus was found.

The educator groups expressed more support for persons of various levels of education being represented on the citizens committee. The citizen group favored more than did the educator groups the idea of committee members serving as individual representatives of the community at large rather than as representatives of community organizations or other groups. Strongest support for citizens committee membership including representatives from the community labor force came from the school administrators, followed in order by the vocational educators and the citizens. General consensus of the respondents was that the faculty and staff, board of education, citizens nominating committee, and the superintendent of schools should all be involved in nominating members of the citizens advisory committee. School administrators were more in favor than the citizens or the vocational educators regarding the appointment of committee members for a definite length of time. The citizens most strongly favored committee members being appointed for a definite length of time. The citizen group tended to express slight agreement, with disagreement revealed in the responses of the educator groups regarding the local board of education making the final selection of committee members.

Findings. In regard to committee organization, nearly 42 percent of the respondents believed three years to be the best length of period of service for committee members. Almost 60 percent of the respondents felt that five to nine persons was the best committee size. School or the citizens for citizen advisory committees convene and operate only after receiving board of education approval. The position groups generally favored September 1 as the best date for the annual citizens committee organization meeting, although the educator groups were more in favor of September 1 than were the citizens. The citizens provided the strongest support of the position groups for regularly scheduled committee meetings. The educator groups generally supported the holding of committee meetings only when there is sufficient need, but disagreement was evident in the responses of the citizens. School administrators and citizens expressed more agreement than did the vocational educators in regard to committee officers coming from the lay members of the committee and not from local school personnel.

Age of the respondents, years enrolled in high school vocational education classes, and college or university courses taken in the administration, philosophy, or teaching of vocational education were the most important background variables associated with differences of opinion among citizens, school administrators, and vocational educators.

42. McMILLION, Martin B., The Relationship of High School Pupils Leadership Decision Patterns to the Connotative Meaning Placed on the Word "Leadership" and to Socio-Economic Status. Staff Study, 1968. Department of Agricultural Education, University of Minneosta, St. Paul.

Purpose. The purposes of the study were to: (1) ascertain the relationship between the connotative meaning placed upon the word "leadership" by high school vocational agriculture pupils and the degree to which these pupils conform to the democratic-cooperative style of leadership, (2) determine whether or not different socio-economic stratifications of high school vocational agriculture pupils exhibit different styles of leadership, and (3) ascertain whether or not pupils in different high school grades exhibit different styles of leadership.

Method. The study group consisted of 94 pupils studying vocational agriculture who had been classified into socio-economic stratifications in a previous study by the researcher in which the connotative meaning of the word "leadership" was investigated. The earlier study revealed that the lowest socio-economic group of pupils valued the word "leadership" more highly than did the highest socio-economic group of pupils.

The Cassel-Stancik Leadership Ability Evaluation instrument was administered to the study group to ascertain leadership ability and leadership style. Greater leadership ability is indicated by a total weighted score when a high number of democratic-cooperative choices are made. Leadership style in this study was expressed by the number of responses corresponding to a particular style of leadership.

Findings. A significant relationship was found to exist between the leadership ability scores of the pupils and the extent to which they felt that the word "leadership" was meaningful. The relationship indicated that those who felt leadership was most meaningful chose fewer democratic responses. An examination of the means of the correlated data by socio-economic strata of pupils would suggest that the low socio-economic group of pupils valued leadership more and were less democratic.

An analysis of variance test, however, did not indicate that the differences among the three socio-economic strata of pupils in leadership style (number of responses corresponding to each style of leadership) or in leadership ability (total weighted leadership scores) were statistically significant at the .05 level.

Pupils in the tenth grade gave significantly fewer (.05 level) democratic-cooperative responses than the eleventh grade pupils. Twelfth grade pupils gave fewer democratic-cooperative responses than the eleventh grade pupils, but their number of responses were not significantly different from those of the tenth or eleventh grade pupils. An analysis of autocratic-aggressive responses for the three high school grades of pupils showed that the number of autocratic-aggressive responses of eleventh grade pupils were significantly fewer (.05 level) than for either tenth or twelfth grade pupils.

No significant difference was found in the leadership ability (total weighted score) of the pupils classified by high school grade.

43. McVEY, Gary C., Competencies in Carpentry Needed by Iowa Farmers. Thesis, M.S., 1969. Library, Iowa State University, Ames.

Purpose. Purposes of this study were to determine the competencies in farm carpentry needed by farmers, to determine the degree that these competencies are needed and possessed, to determine the factors influencing the degrees that they are needed and possessed, and to determine the educational implications of the findings in teaching farm carpentry at the secondary and post-secondary levels.

Method. A panel of 12 specialists assisted in the development of a list of 47 competencies in carpentry needed by farmers. These competencies were included in a questionnaire which was sent to two groups of farmers. One group consisted of farmers selected as outstanding in the carpentry area by teachers in 75 of the 150 randomly selected departments of vocational agriculture in Iowa. The other group was selected by teachers in the remaining 75 departments who submitted names of over 3,000 members of adult farmer classes. Useable questionnaires were received from 147 of 205 outstanding farmers and from 250 of 539 adult farmer class members to whom questionnaires were sent.

Findings. The four competencies ranked highest for competence needed by both the outstanding farmers and the adult class members were: (1) the ability to use safe working procedures; (2) an understanding of safe practices in carpentry construction; (3) an understanding of insulation, heating and ventilation of farm buildings; and (4) the ability to compare different building alternatives. The two groups of farmers ranked the competencies needed in basically the same order.

A comparison of the scores for competence needed and the amount of construction completed by both groups of farmers revealed relationships significant at or above the 5 percent level in the following eight competencies: (1) an understanding of insulation, heating, and ventilation of farm buildings; (2) the ability to prepare a working drawing to scale; (3) an understanding of how buildings carry loads; (4) an understanding of roof trusses and frames; (5) the ability to lay out and cut braces; (6) the ability to read blueprints and drawings; (7) an understanding of the load carrying capacities of beams and columns; and (8) the ability to compare different building alternatives.

The following suggestions were offered to improve carpentry instruction: (1) the vocational agriculture programs in farm carpentry may need to be evaluated and updated; (2) programs in farm carpentry might be developed for day school students, young farmers, and adult farmers that include the more complex skills in carpentry demanded by an increasingly technical agriculture; and (3) the competencies involved in comparisons between competence needed scores and construction completed by farmers without outside help could be used as a nucleus in developing farm carpentry instructional programs.

44. MEHTA, Ratan C., Leader Behavior and Its Relation to Innovativeness of County Extension Agent Chairmen. Dissertation, Ph.D., 1967. Library, The Ohio State University, Columbus.

Purpose. To analyze the leader behavior of County Extension Agent Chairmen as incumbents of a leadership position in the Ohio Cooperative Extension Service and relate it to their innovativeness in adoption of programming innovations.

Method. Sixty county extension agent chairmen who had occupied that position for three or more years in the same county constituted the respondent group. Four program innovations--long time program planning, in-depth teaching, industry approach to extension education in agriculture, and the comprehensive representation on county extension advisory committee--were selected to measure innovativeness. The paired comparison technique was used for ranking the agent chairmen on the relative degree of innovativeness on each innovation. The Forced-choice Leader Behavior Description Questionnaire was used to categorize agent chairmen on leader behavior dimensions of "initiating structure" and "consideration." The personal characteristics and self-perceptions of the agent chairmen on innovativeness and satisfaction in job were obtained from the agent chairmen also.

Findings. The agent chairmen who exhibit leader behavior which was above average on both the "initiating structure" and "consideration" dimensions were more innovative in adopting program innovations.

The factors of age, amount of formal education, tenure in extension, number of family dependents, participation in in-service workshops and conferences, and recency of assuming the position of county extension agent chairmen were not significantly related to innovativeness as measured by adoption of program innovations. The less the elapsed time since the last graduate course taken by a county extension agent chairman, the more likely he was to adopt a program innovation early.

Agent chairmen who perceive themselves as innovative were significantly more likely to adopt a program innovation. The more innovative agent chairmen indicated a higher satisfaction with their present job and have higher career expectations in general.

45. MIEHE, Grover Carl, Factors Related to Occupations of Farm-Reared Male Graduates of Monticello Community High School. Thesis, M.S., 1969. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to ascertain the factors related to the occupations of the farm-reared male graduates of the Monticello Community High School, Monticello, Iowa, from 1950 through 1962.

Method. The population consisted of 236 farm-reared male graduates. Addresses were obtained for 230 of these graduates; 5 were deceased and one address was unknown. The permanent records of the Monticello Community High School and questionnaires completed by 202, or 88 percent, of the graduates were the sources of data included in this study.

Findings. Approximately 92.5 percent of the 202 farm-reared male graduates were sons of farmers, 3 percent were sons of businessmen, and 4.5 percent were sons of parents in crafts and industry. Findings revealed that 19.8 percent of the graduates had entered professional occupations, 26.3 percent were engaged as farm operators and farm laborers, 16.8 percent in services, 13.9 percent were craftsmen, and 10.9 percent were in clerical and sales occupations. The remaining 12.3 percent of the graduates were found to be in the occupations of managers, operatives, non-farm labor, and military. A classification of the occupations of graduates on another basis showed that in addition to the 26.3 percent who were farming, 28.2 percent were in farm related occupations, making a total of 54.9 percent in agriculture. There were 45.1 percent in non-agricultural occupations. Forty percent of the graduates had attended college (13.9 percent had attended 5 years or more of college and 12.3 percent had attended 4 years). Of the 60 percent who had not attended college, 25 percent were in the upper half of their high school graduating class.

Of all farm-reared male graduates, 54 percent lived within a radius of 30 miles of Monticello and only 22 percent had migrated from the state. However, only 25 percent of the graduates in the first decile group of their graduating class lived in the 30-mile radius area of Monticello, whereas, 81 percent of those in the tenth decile group lived within the area.

The mean values of course areas to graduates in their present occupations were expressed by the graduates on a three-point scale (1 to 3). An average mean value of 2.2 for vocational agriculture was the highest rating. Other values were 2.1 for mathematics, 2.0 for commercial and communicative skills, 1.8 for industrial arts, 1.8 for science, 1.7 for foreign language, and 1.6 for social studies. An expression of personal satisfaction of graduates in their present occupation showed: 46 percent very satisfied, 54 percent satisfied, 2 percent dissatisfied, and 2 percent very dissatisfied.

46. MILLER, Raymond Allen, Problems Reported by Agriculturally-Oriented Freshmen and Sophomore Male Students of The Ohio State University. Thesis, M.S., 1968. Library, The Ohio State University, Columbus.

Purpose. To identify problems reported by male freshman and sophomore agriculture students at The Ohio State University and those reported by corresponding agriculturally-oriented students at regional campuses of the University in the spring quarter of 1968.

Method. Respondents consisted of a 25 percent random sample of the 842 male freshman and sophomore students enrolled in the College of Agriculture and Home Economics on the central campus and a corresponding group of 140 agriculturally-oriented students identified on four regional campuses. By means of a mailed survey, students were asked to complete the Mooney Problem Check List College Form which consisted of 330 items classified into 11 problem areas. Students reported by indicating items indicative or descriptive of a personal concern and further indicated which were strong concerns. Fifty-eight percent of the check lists were returned and usable for the study.

Findings. Over 20 percent of the problems reported by each group were in the area of Adjustment to College Work. More than 60 percent of the problems reported were in the five problem areas of Adjustment to College Work, Social and Recreational Activities, Personal-Psychological Relations, Curriculum and Teaching Procedures, and Future: Vocational and Educational. Problem areas which received a smaller distribution of responses were Morals and Religion, Health and Physical Development, and Home and Family. The rank order correlation of problem areas for students at the central campus and the regional campuses was .94.

47. MOLLER, Frederick H., Jr., A Study to Measure the Effectiveness of Wyoming's Adult Education in Agriculture. Colloquium, M.A., 1968. Agricultural Education, University of Minnesota, St. Paul.

Purpose. To determine if the Adult Education offered by Agriculture Departments in Wyoming are meeting the needs of today's farmers and ranchers.

Method. The writer sent a questionnaire to past enrollees from the years 1963-1967. The enrollees were either farm or ranch owners, renters or managers. The mailing list was obtained from adult class enrollment forms sent to the State Department of Education and the addresses obtained from the Agriculture Instructor. The respondent either responded "yes" or "no" to the question or rated the question from one through seven as to degree of effectiveness.

Findings. Of 51 schools offering vocational agriculture an average of 13 will offer adult courses. Over the past five years Wyoming had only four schools offering at least one 10-week two-hour course per year. Seventy-two percent of the courses offered have been in welding, and many of these enrollees were persons in non-agriculture professions.

In rating Wyoming's adult agriculture program, 85 percent indicated they were satisfied with the present two-hour 10-week method of instruction. Nearly two-thirds of the respondents indicated their willingness to join a vocational agriculture farm-ranch management program utilizing a record keeping system and using this tool to increase efficiency and improve income. The management areas of agriculture were in need of added emphasis. Wyoming should expand the adult program and where enrollment is obtained, center the program around a systematic instruction utilizing a record keeping and analysis system similar to the one used by Minnesota.

48. MONDEH, Renner Eric, Functional Vocational and Technical Education in Agriculture for Sierra Leone. Dissertation, Ph. D., 1970. Library, University of Illinois, Urbana.

Purpose. The purpose of this investigation was to determine how extensive a program of vocational and technical education in agriculture Sierra Leone will need to accelerate the Nation's pace of development toward ultimate economic viability. A further objective was to discover and to indicate some of the problem areas and needs in developing effective programs of vocational and technical education in agriculture for Sierra Leone. A brief historical survey of the development of vocational and technical education in the United States, and a few other countries was made with a view to determining the methods used by the leaders of those countries in meeting the vocational and technical education needs of their people, especially in agriculture.

Method. The investigator conducted a library study to examine the present social and economic situation in Sierra Leone.

A study of the historical development of vocational and technical education, with special reference to agricultural education in selected countries was undertaken to identify significant causes of success. Special attention was given to the study of the factors which have contributed to the phenomenal progress made by the United States of America in her agricultural enterprises.

On the basis of the findings related to Sierra Leone's present problems, and the methods utilized by the nations studied in resolving similar problems, the writer suggested programs of vocational and technical education in agriculture for present and future farmers and non-farm agricultural workers in Sierra Leone.

Findings. The findings of the study include the following: (1) that Sierra Leone is basically an agricultural country, and since agriculture is not considered a prestigeous vocation at present, youth do not aspire, nor are they attracted to agricultural activities; (2) that rapid growth of Sierra Leone's population within the past decade has raised serious social and economic problems, such as unemployment of secondary school graduates and drop-outs; (3) that the choice of priorities in the past, with respect to developmental projects for Sierra Leone, left much to be desired; (4) that the absence of organized career guidance and counseling facilities in the educational system, coupled with undue emphasis on the attainment of academic excellence to the almost total disregard of the value of developing vocational skills have been contributory factors in the lessening productivity of most Sierra Leone workers; (5) that Sierra Leone will require foreign aid in implementing the recommendations of this study, as well as enlightened legislative activities in support of vocational and technical education programs; (6) that the experiences of other nations indicate that political stability is a necessary condition for making progress; and (7) that constant experimentation in the other nations studied was a major factor in the change of attitudes and habits of most people, and it caused many persons to adopt innovations in economic and educational institutions.

Also, there was evidence of cooperation between, and among government workers, industrial employees, educational institutions, the churches and other voluntary organizations. In addition, special organizations were established to encourage the development of vocational interests in certain occupations. The Future Farmers of America is one example of such an organization.

The recommendations were: (1) the establishment in Sierra Leone of a vocational and technical education in agriculture program; (2) the sponsorship of research activities to support the vocational and technical education in agriculture program; and (3) legislative action including the establishment of a Commission for Agricultural Education in Sierra Leone.

49. MURRAY, John James, Farm Power, Machinery and Electricity Practices Completed by Selected Farmers in Vocational Agriculture Farm Management in Southern Minnesota. Thesis, M. A., 1968. Agricultural Education Department, University of Minnesota, St. Paul.

Purpose. To determine how farmers in the vocational agriculture farm management program of southern Minnesota completed practices in farm power, machinery and electricity.

Method. Records were taken from farmers in southern Minnesota who had completed farm analysis summaries for 1964, 1965 and 1966. The questionnaire was in two parts. Part one included information on costs relating to the areas of farm power, machinery and electricity. This part was filled out by the instructor at the school. Part two with a letter of explanation was sent to farmers for completion. It consisted of background information and a checkoff list of 15 practices in farm power, 15 in machinery and 15 in electricity.

Findings. Approximately 50 percent of electrical practices, when compared to all factors studied, were completed by the farmers themselves. As farmer's operator labor earnings increased, they relied more on commercial firms to complete more practices. The renter will hire more practices completed than the owner. Farmers who completed three to four years of vocational agriculture and those with no vocational agriculture completed less practices by commercial firms than did those with one or two years of vocational agriculture. The younger farmers and those with the least years of farming and farm management instruction relied on commercial firms to complete more electrical practices than did the older farmer and those with more years of farming and farm management instruction.

The farmers, regardless of level of operator labor earnings, age and years of farming completed better than 64 percent of the farm power practices by themselves. Commercial firms completed approximately 20 percent of practices except the farmers with high operator labor earnings used commercial firms to complete 30 percent of practices.

When machinery practices were compared to years of high school vocational agriculture, years of farming, age, and operator labor earnings, it was found that the farmers completed over 85 percent of these practices by themselves and had commercial firms complete less than ten percent of the practices.

50. NORRIS, Virginia, Educational Methods Used in Presenting Consumer Information to Homemakers Living in Low Income Urban Areas. Dissertation, Ph. D., 1967. Library, The Ohio State University, Columbus.

Purpose. To describe the characteristics of homemakers living in low income areas who attended educational meetings in which consumer education information was presented.

Method. The study involved homemakers living in low income areas in St. Louis City and St. Louis County, Missouri. The study assessed the methods homemakers perceived to be their sources of information for selected homemaking practices and measured the consumer education knowledge acquired and practices adopted by the homemakers. The design of the study involved a comparison between homemakers participating in the educational meetings and homemakers who did not participate.

Findings. Homemakers with incomes of less than $2,000 who were 30-39 years of age with 9-11 years of formal education showed consistently higher scores indicating acquisition of knowledge and adoption of practices than other homemakers.

Educational meetings and the home economist were rated as the major source of consumer education information by participants. Consistently high ranked sources of information for participants were their ideas and "other" sources of information. Flyers and leaflets directed to these homemakers were rated as a source of knowledge often enough to consider their use an important method of reaching these homemakers.

There was little difference in the levels of formal education between participants and nonparticipants. A majority of the nonparticipants were in the lower income brackets, were nonwhite, and lived in public housing.

51. O'NEAL, Alan L., Competencies in Concrete Construction Needed by Iowa Farmers. Thesis, M. S., 1969. Library, Iowa State University, Ames.

Purpose. The purposes of the study were to: (1) identify the competencies in concrete construction needed by Iowa farmers; (2) determine the degree of competence in concrete construction needed and possessed as related to select and average farmers in Iowa; (3) determine the relationship between needed and possessed understandings, management, and mechanical abilities; and between factors such as educational level, semesters of vocational agriculture, training in concrete construction, ability in concrete construction, and percent of concrete used that was ready mixed; and (4) provide information for planning teaching units for high school and post high school programs.

Method. A panel of 14 experts in concrete construction assisted in developing a list of 50 competencies (20 understandings and 30 abilities) needed by farmers in concrete construction. Instructors in 90 randomly selected vocational agriculture departments in Iowa were asked to submit a mailing list of their adult farmer class members and to check the names of five farmers who had done a considerable amount of concrete construction during 1967-68. The 345 farmers whose names were checked were designated as the selected farmer group. From the remaining list of approximately 3,000 farmers, 540 were designated by random sampling as the average farmer group. Questionnaires were mailed to each group. From the select farmer group, 200 (59 percent) usable questionnaires were received and from the average group, 206 or 38 percent usable questionnaires were returned.

Findings. Data revealed that both the selected farmers and the average farmers believed that they possessed a significantly lower level than they needed of the 20 understandings and of the 30 abilities that were considered by the experts to be important to farmers.

In the opinion of the researcher as a result of the study, the following competencies should be included in high school vocational agriculture and post high school instructional programs in concrete construction: understandings--characteristics of quality concrete, water-cement ratio, importance of using reinforcement, how curing methods affect strength, curing time as related to strength, and proper location of reinforcing material; management abilities--select water-cement ratio for given strength, compute amounts of aggregate and portland cement needed, compute cost of concrete construction, compute cubic yards of concrete, and select proper size and type aggregate; and mechanical abilities--layout foundations and footings, use proper curing methods, construct concrete forms, finish concrete according to intended use, and use level in concrete construction.

52. PETERSON, Roland L., An Experimental Evaluation of the Principles Approach for Teaching Vocational Agriculture to High School Students. Dissertation, Ed.D., 1969. Library, The University of Nebraska, Lincoln.

Purpose. The purpose of this study was to compare an experimental principles approach and the traditional approach in teaching agricultural subject matter to students enrolled in vocational agriculture. The major objective was to test the null hypothesis: "There is no significant difference in the achievement of students taught agricultural subject matter based on biological science, physical science and economic principles and those taught agricultural subject matter based on enterprise problems." Animal Science was taught at the ninth grade level; Animal, Plant and Soil Science at the tenth grade level; Agricultural Mechanics at the eleventh grade level; and Agricultural Marketing and Management at the twelfth grade level.

Method. The study involved a sample of 393 secondary school students enrolled in vocational agriculture courses in ten randomly selected Nebraska public high schools. Five schools were randomly selected as the experimental group and the remaining schools comprised the control group. There were 193 students in the experimental group and 200 students in the control group. A total of 101 students were enrolled in the ninth grade course; 107 in the tenth grade course; 93 in the eleventh grade course; and 92 in the twelfth grade course. The experimental teachers were given 40 hours of instruction in the use of the principles approach along with course outlines of the teaching material. Teachers in the control schools were briefly oriented to the project and course outlines were provided assuring the teaching of comparable subject matter in both treatment groups. The study was a non-equivalent control group quasi-experiment. The experiment was conducted during the 1967-1968 school year.

For the test of the null hypothesis, an analysis of covariance statistical design was used to determine whether significant differences existed in the agricultural achievement of students in the control and experimental groups. The covariates used to adjust the data were the students' pre-test scores on an agricultural achievement test, intelligence quotient, overall rank in class and quality of supervised farming program. Several comparisons were made to determine the relationships and differences between the control and experimental groups regarding student characteristics. The opinions of teachers and school administrators were also assessed to determine the feasibility of implementing the principles approach into the vocational agriculture courses of study.

Findings. Based on the data presented in the study, the results showed that for the ninth grade Animal Science course and the eleventh grade Agricultural Mechanics course, the null hypothesis should be rejected. Students in the experimental group attained significantly greater ($p < .05$) achievement in favor of instruction based on the principles approach. For the tenth grade Animal, Plant and Soil Science course and the twelfth grade Agricultural Marketing and Management course, the null hypothesis was not rejected as no significant differences ($p > .05$) existed in the achievement of students in the two treatment groups. An analysis of the scores of all students in the two groups resulted in significantly greater ($p < .05$) achievement for students taught agriculture based on the principles approach. The comparison of student characteristics between the two treatment groups revealed, in general, no significant differences ($p > .05$) existed for the students' pre-test scores, intelligence quotients, agriculture, science, mechanical and business interests, farm or non-farm background, quality of students' supervised farming programs, the students' overall rank in class and student attitude toward the teacher and the teaching method. Questionnaire responses by teachers and administrators indicated strong support for the principles approach.

As a result of the evidence from this study, it seems apparent that the achievement of the students taught agricultural subject matter based on the principles approach is equal to or greater than that of the students taught in a traditional manner.

53. PHELPS, George F., Factors Which Influence Iowa Vocational Agriculture Instructors to Remain in the Profession. Thesis, M.S., 1969. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to establish criteria to help in the selection of men interested in making vocational agriculture their careers and to discover factors associated with tenure of teachers.

Method. Questionnaires were mailed to all 240 vocational agriculture instructors teaching in Iowa during the school year of 1968-1969. A total of 217 questionnaires (90 percent) were returned by the cut-off date, November 11, 1968.

Findings. Approximately 50 percent (110) of the 217 instructors had taught vocational agriculture six years or less; 63.5 percent (138) had taught less than ten years. Only 13.9 percent (30) had taught 19 or more years.

The majority of the instructors were located in high schools having enrollments of 250 students or less (79 percent) and in towns of 2000 or less population (57.6 percent).

Approximately 66 percent (144) of the instructors surveyed had some vocational agriculture training in high school. Of the 73 instructors without vocational agriculture in high school, approximately 70 percent (51) had seven or more years of teaching experience.

Approximately 25 percent (54) of the respondents had 35 or less students enrolled; 40 percent (87) of the departments had enrollments of 36 to 51; 25 percent (55) had enrollments of 52 to 67; and only 10 percent (21) of the departments had enrollments which exceeded 68 students. Fourteen (70 percent) of the 21 departments with 68 or more students enrolled had instructors with 12 or less years of teaching experience.

Of the 217 instructors who responded, 84.7 percent (184) had academic degrees of less than the master's level. Only 15.3 percent (33) had earned the Master of Science degree.

The five largest overall mean scores on a five-point scale (1 to 5) for responses of instructors concerning reasons for continuing in teaching were: (1) "I wish to stay close to work associated with the farm," (4.46); (2) "I enjoy small town and rural living and associating with farm people," (4.38); (3) "I enjoy contacts with other vocational agriculture teachers," (4.31); (4) "I enjoy the chance to work outdoors (especially summer)," (4.29); and (5) "I enjoy working with young people and being able to guide and counsel them," (4.29).

Complete years of vocational agriculture teaching yielded a value significant correlation at the one percent level when compared with (1) the age of the instructor at the time of first teaching position (.24), (2) with tenure in present school system (.76), (3) with number of students enrolled (.19), (4) with 1968-1969 annual salary (.52), (5) with factors pertaining to the personal life of the instructor (.27), and (6) when compared to factors pertaining to the agriculture instructor's administrators and supervisors (.21).

54. PHILLIPS, Terrance G., A Study of the Job and Educational Experiences of North Dakota Vocational Agriculture Graduates Who Received the State Farmer Degree from 1960 Through 1965. Graduate Research Paper, M.S., 1969. Department of Agricultural Education, North Dakota State University, Fargo.

Purpose. The purpose was to determine the job and educational experiences of North Dakota Vocational Agriculture graduates who received the State Farmer Degree from 1960 through 1965. Specific objectives were to determine: (1) present (1969) job or educational experiences, (2) highest level and nature of formal educational experience, (3) number of different types or grades of jobs held, and (4) present geographic location.

Method. A questionnaire was developed to secure the necessary information. Findings were based upon 205 questionnaires returned. This represents 76.5 percent of the 268 men who were sent a questionnaire from 43 local Future Farmers of America Chapters in North Dakota. This study contains a sampling of 61.4 percent of the 334 North Dakota State Farmers from 1960 through 1965.

Findings. In 1969 34.1 percent were in production agriculture, 5.4 percent in agri-business, and 13.4 percent in professional agriculture. More than 71.0 percent of those employed not in the Armed Service were in the field of agriculture. Another 8.8 percent were studying agriculture in college.

Of the 205 State Farmers, 46.9 percent had some college education in agriculture and 23.4 percent indicated non-agricultural college as the highest level of formal education. Twelve and six-tenths percent had not gone beyond vocational and/or technical school education, and 7.8 percent had Armed Services or other formal educational experiences. More than 90 percent had received some formal education following graduation from high school.

The sampling of State Farmers indicated 94.6 percent held three or fewer types or grades of jobs since high school graduation, and 85.3 percent held two or fewer.

Seventy-five and six-tenths percent of the State Farmers were living in North Dakota and 39.5 percent were in the community in which they had graduated from high school. More than 87 percent of those who were not in the Armed Services were living in North Dakota.

55. PHILLIPS, William Bryant, Subject Matter Needs of Mahoning County Commercial Firm Personnel Concerned with Turf Grass Installation and Maintenance. Thesis, M.S., 1967. Library, The Ohio State University, Columbus.

Purpose. To determine the size and importance of the commercial turf grass and related industries in Mahoning County, Ohio, to identify current sources of information used by these groups, to identify the needs of these groups for additional subject matter information, and to determine the degree of participation interest if turf grass educational programs were developed.

Method. Data and information were obtained from 67 of 81 businesses concerned with turf grass installation and maintenance in Mahoning County, Ohio. Data were collected by mailed questionnaires and interviews.

Findings. Gross receipts of the commercial turf grass industry in the county exceeded $900,000 annually. The median level of gross receipts for 40 respondents was $19,285. The median grade of school completed by the 67 respondents was 11.9. Thirty-seven percent of the respondents held college degrees; 21 percent of the respondents had some graduate study.

Commercial suppliers and printed material (books and magazines) were major current sources of information. Among general turf grass practices, the greatest need for additional information was in the area of maintenance. Among specific turf grass subject matter areas, the greatest need for additional information was in the areas of herbicides, insecticides, fertilizers, soil testing, and fungicides. Respondents indicating the highest degree of interest in local educational programs include golf course and driving range superintendents, garden store operators and landscapers, and athletic field superintendents.

56. PIERCE, Atheal. A Relationship Between Intrinsic and Extrinsic Job Satisfaction and the Performance of Prospective Teachers. Dissertation, Ph.D., 1969. Library, The Ohio State University, Columbus.

Purpose. To determine the relationship between intrinsic and extrinsic job satisfaction to prospective teachers during their pre-service intern teaching.

Method. Independent variables were intrinsic and extrinsic job satisfaction factors; the dependent variable was teacher performance. A five-point Likert Scale was developed for measuring intrinsic and ex-rinsic job satisfaction. The Stanford Teacher Competence Appraisal Guide, completed by students taught by interns, by cooperating supervisors, and by resident supervisors, was used as the measure of teacher performance. Sixty intern teachers in the secondary teacher education programs at Tuskegee Institute (Alabama) were involved in the study.

Findings. The data indicated that there were no statistically significant relationships among the variables tested. The ratings of teacher performance from "strong" and "excellent" rather than categorizing performance in a range from "weak" to "excellent" made it difficult to secure measurable results. Two dimensions of intrinsic and extrinsic factors of job satisfaction were identified in the study.

57. PRIEBE, Donald Walter, An Interest Inventory of Minnesota Farmers. Dissertation, PH.D., 1968. Library, University of Minnesota, Minneapolis.

Purpose. To compile an inventory of the interests of Minnesota farmers and to compare these interests to those of men-in-general as identified by the Strong Inventory. Specific objectives of the study included: (1) the establishment of a new farmer criterion group for the Strong Vocational Interest Inventory and the development of a new farmer occupational scale, (2) a detailed comparison of the interests of the 1936 farmer criterion group with those of the 1968 criterion group, and (3) a comparison of high and low income farmers on the basis of interest inventory responses.

Method. The Strong Vocational Interest Inventory for Men, Form T 399R, was the instrument used for the study.

The sample included 235 farmers enrolled in the Minnesota Farm Business Management Analysis Program in 26 schools. They had farmed for at least three years.

The mean age of the criterion group was 41.3 years. The mean number of years of school completed was 11.2.

The individual inventories were scored and standard score means and standard deviations for the basic, occupational, and non-occupational scales were calculated. The t-scores for differences between means were computed.

The response percentages of the farmers were calculated for each of the 399 items on the Inventory. Differences between these percentages and those of men-in-general were computed. These percentage differences were used to construct a new farmer occupational scale.

Findings. The interest patterns of the highest and lowest income sub-samples of the group were compared. These interest patterns were not significantly different.

There were numerous and significant differences between the interests of the 1936 and 1968 farmer criterion groups. The 1968 group exhibited a higher degree of interest in agricultural, outdoor, and mechanical activities. The 1936 group scored higher on occupational scales involving working with people. The most striking difference between the two sample groups was the much higher educational level of the 1936 sample.

A new farmer occupational scale was constructed. This scale contained seventy-eight items. Forty-one of these also appeared on the former sixty-five item scale. The new scale contained thirty-seven new items.

58. RUOFF, John David, Perceptions of 4-H Club Work Held by Farm and Nonfarm Parents. Thesis, M.S., 1969. Library, The Ohio State University, Columbus.

Purpose. To determine the image of 4-H Club work held by four groups of respondents in Clermont County, Ohio.

Method. Data were obtained from the following groups of 50 families each: farm families with children of 4-H Club age but not enrolled in 4-H Club; farm families with children enrolled in 4-H Club work; rural non-farm or suburban families with children of 4-H age, but not enrolled in 4-H Club; and rural non-farm or suburban families with children enrolled in 4-H Club work. Useable questionnaires were received from 66 percent of the farm nonmember and 60 percent of the non-farm, nonmember groups. Ninety percent of both member groups returned useable questionnaires.

Findings. There were significant differences in the opinions and understanding of the following factors of 4-H Club work among the four groups of respondents: availability of program, cost of joining 4-H, income of 4-H member families, project availability, girls' project area with greatest enrollment, purpose of 4-H, 4-H Club emblem, meaning of the four H's, who plans local programs, determining quality of local 4-H programs, organization directing county 4-H program, and method used to organize a new 4-H Club. There were no significant differences in opinions and understanding of the following factors among the four groups of respondents: time of year 4-H is conducted, primary objective of 4-H Club work, and adult leadership in 4-H.

There was high agreement among all groups of respondents in the rankings of the ten national 4-H objectives in terms of using them as guides for determining future projects, programs, and activities. A higher percentage of both non-farm groups indicated their children were interested in the leisure time type of projects and activities for the future than the farm groups. Both member groups felt stronger about the "real-life experiences" of 4-H Club work than the nonmember groups. Both non-farm groups had a better overall understanding of 4-H Club work in the county than did the respective farm groups.

The image of 4-H Club work held by parents is influenced by actions and knowledge of 4-H by members and advisors. A higher percentage of parents in both member groups served as adult leaders of youth organizations than the parents in the nonmember group.

59. SCHWINTZ, Larry Charles, Comparative Study of Vocational Agriculture IV Curriculum of Multi-Teacher and Single Teacher Departments in Kansas. Master's Report, 1969. Library, Kansas State University, Manhattan.

Purpose. To identify any difference which might exist in the course of study used in senior agriculture classes on the high school level in multi-teacher departments as compared to courses of study in single teacher departments.

Method. All multi-teacher departments (13) were sent questionnaires and a like number of teachers in single teacher departments were randomly selected from the seven districts comprising the Kansas vocational agriculture organization. The questionnaire asked each teacher to list and indicate the hours of instruction in each area. Responses were tabulated in average time spent in each area and percentage of teachers offering instruction in a particular field.

Findings. A total of nineteen or 73 percent of the teachers returned questionnaires. Teachers from multiple teacher departments indicated they spent an average of 109 hours in class instruction as compared to 92 hours by the single teacher department reports. The most time spent in an area of instruction in multi-teacher departments was in farm credit and finance (12 hours) as opposed to farm accounts and records (13 hours) by the single teacher departments.

Single teacher departments spent 64 hours in agriculture mechanics instruction as compared with 90 hours utilized by the multi-teacher organization. Teachers in single instructor departments spent more of their mechanics instruction time on project construction than did the multi-teacher arrangement department.

Five of the nine multi-teachers responding to the questionnaire indicated they had adult farmer classes during the current year while the ten single teacher departments had none. On the other hand the single teacher departments were offering almost as many young farmer classes as were the multi-teacher departments.

60. SMITH, Wendell Lee, Outdoor Recreational Resource Development Through Vocational Agriculture and the Cooperative Extension Service. Dissertation, Ph.D., 1969. Library, The Ohio State University, Columbu .

Purpose. To assess the opportunities in outdoor recreation in Ohio and the nation with respect to the present status and developmental potential of educational programs which are or may be provided by vocational agriculture and the Cooperative Extension Service.

Method. Six groups of respondents supplied data for the study through mailed questionnaires: 164 persons from a random sample of 300 persons (general public) from Cleveland, Columbus, and Cincinnati, Ohio; 28 outdoor recreational managers representing the 37 members of the Ohio Campground Owners and Operators Association; 27 vocational agriculture instructors from a random sample of 30 Ohio vocational agriculture instructors; 30 county extension agents from a random sample of 30 county extension agents in Ohio; 49 of the 50 head state supervisors of vocational agriculture; and 43 Cooperative Extension Service specialists in outdoor recreation from a sample of 50 in the nation (one per state).

Findings. The general public feels there is a shortage of facilities in Ohio in all 16 of the major outdoor recreational activities investigated in the study. Shortages were particularly acute for the activities of picnicking, fishing, and camping. The general public has considerable interest in free (non-occupational) instructional courses dealing with outdoor recreation. The activities in which the greatest instructional interest was found were, in order of importance, golf, horseback riding, swimming, and camping.

Fifty-two percent of the vocational agriculture teachers in Ohio and 46 percent of the county extension agents presently offer instruction in outdoor recreation. By 1974, 81 percent of the teachers and 77 percent of the agents indicated that they would be offering such instruction. Teachers and agents indicated that the importance of instruction would not decrease in any of the recreational activities by 1974.

In the United States, 49 percent of the states now offer outdoor recreation instruction in vocational agriculture programs. By 1974, 88 percent of the states plan to offer such instruction in vocational agriculture programs. At present 88 percent of the states offer outdoor recreation instruction in the Cooperative Extension Service. In the future it was projected that 93 percent of the states will offer outdoor recreational instruction in the Cooperative Extension Service.

61. SPENCER, Norvin, Competencies Needed by Buyers of Livestock for Slaughter. Thesis, M.S., 1968. Library, Iowa State University, Ames.

Purpose. The purposes of this study were: (1) to ascertain employment opportunities in livestock buying, and (2) to determine competencies needed and possessed by buyers of livestock for slaughter.

Method. A panel developed a list of competencies needed by livestock buyers. The panel consisted of 11 men, who were buyers of livestock and extension personnel in agricultural economics and animal science at Iowa State University. The list was included in a questionnaire which was submitted to a group of 197 buyers of livestock. The livestock buyers evaluated the degree of competence that they needed to succeed in livestock buying and the degree to which they possessed each understanding or ability. Rating of degree of competence was on a five-point scale (0 to 4). Other personal information was requested for use in stratifying respondents. Useable questionnaires were received from 134 livestock buyers.

Findings. Of the 39 competencies selected by the panel of specialists, 17 were abilities and 22 were understandings. Competence needed mean scores of 3.0 or higher (much competence needed) were indicated by livestock buyers for the abilities to: (1) estimate weights, (2) estimate dressing percentages, (3) estimate the correlation between the live animal and the carcass cutability and grade, (4) figure shrink percentages as it influences value, (5) make accurate mathematical calculations, (6) converse effectively on the telephone, (7) obtain confidence of customers in buyer's honesty and integrity, (8) meet people and be of service, (9) recognize and identify disease and parasitic conditions, and (10) use sound judgement in making effective decisions.

Mean scores of 3.0 or higher were expressed by the livestock buyers for needing understandings of: (1) USDA market grades, (2) company grading system, (3) USDA Packer-Stockyard regulations, (4) state regulations of livestock scales, (5) condemnation causes, (6) economic losses from bruising, parasites, etc., (7) yields as related to market value, (8) carcass cutout information, (9) shrink percentages and factors affecting shrink, and (10) procedures for handling and loading livestock to prevent bruising and death loss.

Cattle buyers were found to be slightly older than hog buyers and they had also completed more formal education.

The ages of buyers would indicate that over 50 percent of them will have to be replaced during the next 10 to 20 years.

These 39 competencies are needed by livestock buyers and are important in planning training programs for present and prospective buyers of livestock. They should form the basis for instruction for such persons in vocational agriculture programs for high school youth, in area vocational schools, in junior college programs in off-farm agriculture occupations, in programs in the College of Agriculture, and in company training and in-service training programs.

62. SPENGLER, Verne C., Agricultural Mechanics Facilities in Minnesota High Schools. Thesis, M.A., 1968. Library, Institute of Agriculture, University of Minnesota, St. Paul.

Purpose. To determine the facilities, tools and equipment available for agricultural mechanics in Minnesota High Schools and to determine the relationship between present facilities and the financial ability and financial effort exerted by the local school districts.

Method. A survey instrument was mailed to all vocational agriculture departments in the state. A total of 228 schools or 81 percent of the vocational agriculture departments in Minnesota were used in the study. Financial data for each school were obtained from records in the State Department of Education. Data were entered on code sheets and processed by computer at the St. Paul Campus, Computer Center.

Findings. Twenty schools in this study did not have shops. Of the 208 schools with shops 108 or 52 percent were shared with industrial arts or other school uses. Free floor space in the shop averaged 1761 square feet or 109 square feet per student in the largest class. U. S. Office of Education recommendations call for 150 square feet of free floor space per student. Less than 15 percent of the schools met this requirement.

The financial ability or effort exerted by a school district did not influence free floor space in the shop, teacher tenure, enrollment, number of agriculture teachers or number of tools owned. The number of college credits earned by the instructor in agricultural mechanics had an affect upon the degree to which the shop was equipped. When instructors had 0 - 14 college credits, 14 percent of the shops were well equipped. As quarter hours increased to 15 - 20, 33 percent were well equipped and where instructors had over 20 quarter hours, 52 percent of the schools were well equipped.

Variations in facilities among the eight vocational agriculture regions were noted. Regions five and two had the most schools with large shops. Region eight had the most schools without a shop. Many of the shops in Minnesota are relatively new with 20 percent being one to five years of age, 41 percent 6 to 10 years of age and only 8 percent over 15 years of age.

63. TAVARES, Carlos Alberto, The Development of Agricultural Education at the Secondary Level in Brazil. Thesis, M.S., 1968. Library, University of Minnesota, St. Paul.

Purpose. To analyze the essential features of agricultural education so as to provide a basis for the development of cooperative vocational agricultural programs in the country.

Method. The study was conducted on a descriptive basis. Essential features of agricultural education at the secondary level were analyzed. These were used to justify the urgent need to develop vocational agricultural programs in Brazil. The experiences of other countries were considered and compared mostly to show the need to bridge the gap between the three levels of education as an integral part of the educational system and national, state and local agricultural policies.

Findings. Vocational education in agriculture in Brazil is almost non-existent. There is a tremendous urgency to develop vocational agricultural programs in rural areas. Agricultural education at the secondary level is provided only by few agricultural schools. The extension service cannot provide agricultural education for adult and young farmers in all areas of the country where it is needed. The shortage of extension personnel working directly with farmers is evident. There is a high index of dropouts in elementary education in rural areas. The number of agricultural teachers is insufficient to attend the demand for agricultural education and the preparation of these teachers is a crucial issue in the country. The lack of incentives for the teacher profession is a strong handicap to develop teacher education programs. There is a great need to develop cooperative vocational agricultural programs in rural communities. It is recommended to include agriculture in the early stages of elementary education as well as in the curriculum of secondary rural schools in addition to agricultural schools. There is a need to divulge a philosophy of vocational agricultural education and the opportunities created for those who have agricultural skills and knowledge.

64. TERRY, Howard Robert, Composite Profiles of Agricultural Machinery Service Occupations as Derived from Comparative Analyses Across Incumbents. Dissertation, Ph.D., 1969. Library, The Ohio State University, Columbus.

Purpose. To identify and describe the service occupations in a purposive sample of agricultural machinery dealerships. The specific objectives were to identify, by job title, each of the service occupations in the sample of dealerships, and to develop both duty and non-duty descriptive profiles of each service occupation identified.

Method. Sources of data were employers and service department employees in ten Deere and Company dealerships in Ohio, selected by Columbus Branch management personnel as being typical of operations which are likely to exist in the future. Data were collected by means of on-site interviews of respondents utilizing schedules developed and administered by the investigator. By utilizing a procedure developed for the Air Force, job descriptions of all incumbents of a given job title were consolidated into a duty-level group description of that job. The homogeneity of each group was measured by determining the overlap between individual and group descriptions in terms of time spent on duties and also by the extent to which the group description "perfectly described" the work time of the average group member.

Findings. Although 22 job titles were identified, similarities permitted condensing these into a list of nine titles including parts manager, parts man, shop foreman-service manager, lawn and garden service manager, mechanic, set-up man, set-up man-field mechanic, and truck driver-delivery man. New positions expected to emerge in five years included lawn and garden serviceman, field service mechanic, used machinery repair man, used machinery foreman, diesel engine specialist, hydraulic systems specialist, and electrical systems specialist.

The following non-duty characteristics were generally similar for all occupations studied: type of promotion, paid holidays, minimum education required and preferred, health insurance coverage, tools furnished, and occupational experience required. Work hours per week, hourly wages, life insurance coverage, paid sick leave, vacation, and paid training leave allowed were variable non-duty features of the occupations.

Duty profiles of the respective jobs focused on duties performed, percentage of work time devoted to duty performance, and location of duty performance. The number of duties performed by groups of job title incumbents ranged from seven for parts men to 19 for shop foreman-service managers and mechanics. The percentage of time "perfectly described" by the group job descriptions ranged from 58 percent for shop foremen-service managers to 90 percent for lawn and garden service managers.

It was concluded that the employment outlook for service occupations in these dealerships was favorable. Employers' preferences indicated that post-high school instructional programs can play a major role in meeting existing and anticipated manpower needs. Establishment of the following types of post-high school programs was recommended: (1) a combination program for set-up foremen, set-up men, set-up men-field mechanics, and truck driver-delivery men; (2) a combination program for parts managers and parts men; (3) a combination program for shop foremen-service managers and mechanics; and (4) a program for lawn and garden service managers.

65. THOMPSON, David F., A Follow-Up Study of the Vocational Agriculture Graduates of Ford High School from 1953 to 1968. Master's Report, 1969. Library, Kansas State University, Manhattan.

Purpose. To provide data to assist in the determination of the value of the vocational agriculture curriculum now being offered at Ford High School.

Method. Questionnaires were sent to the 105 graduates of Ford High School, Kansas, that covered the period of 13 years. A number of items on the questionnaire sought to ascertain how the instruction given in high school related to what they were doing presently.

Findings. Sixty-four out of the 105 graduates returned the form. Eighty-one percent of those returning the questionnaire had attended schools of higher learning, 10 percent entered the Armed Forces, and another 10 percent went into the world of work. Of the respondents, 14 percent had completed one year of Vocational Agriculture, 13 percent two years, 35 percent three years, and 38 percent had completed the four year course. Sixty-five percent of those students were now employed either in farming, agri-business or part-time agriculture. On the subject of how Vocational Agriculture had helped them, 49 percent indicated it had helped them in their present occupation, 39 percent were sure it helped them as much as any other course they had taken in high school, and only 11 percent felt it did not help them in their present occupation.

Sixty-one percent of the respondents felt that the farm shop program was the most beneficial part of the Vocational Agriculture curriculum.

66. THOMPSON, John F., BJORKMAN, Sidney R., and EVERSON, Norman O., An Evaluation of Television in Extension Youth Programming. Staff Study, 1968. Univerisity of Wisconsin, Madison.

Purpose. The primary purpose of the study was to evaluate the effectiveness of television in programming for youth during the non-school portion of a day.

Method. The treatment was a series of 10 television programs on emergency preparedness on a commercial station. Materials (publicity, posters for classrooms, discussion guides) were distributed through the schools of LaCrosse County, Wisconsin. All teachers of fourth, fifth, and sixth grades in LaCrosse County cooperated and their pupils constituted the population of the study for treatment. A control group in another Wisconsin county of the same grades was selected. Each was given a pre- and post-test. Data were analyzed employing frequency counts, mean difference scores and analysis of variance techniques. Effectiveness was defined as the degree of participation and the resulting learning by students.

Findings. The programs were watched by two out of three students and only 7 percent of 2473 students refused to participate. Activities conducted by the classroom teachers as a follow-up to the programs increased learning. The experimental group learned significantly more than the control group, and those who had classroom activities learned more than those who only watched the programs. A group of "active" learners who participated in all activities (watching programs, classroom activities, and constructing projects) had significantly higher learning than did a group of "passive" learners. Passive learners were those who could have participated, but who refused to do so. Significant learning occurred at each grade level with fourth graders learning less than fifth, and fifth less than sixth. All measures of significance were tested at the .001 level of significance.

It was concluded that television is an effective tool to reach young people during non-school hours. Young people in the upper elementary school will participate in such programs and schools will cooperate.

67. THOMPSON, John F., Characteristics of Students Enrolled in Wisconsin Vocational Agriculture, 1968-69, Pilot Programs in Vocational Agriculture, Report No. 2. Staff Study, 1968. University of Wisconsin, Madison.

Purpose. The Wisconsin Vocational Agriculture Pilot Programs were evaluated using a formative framework--a framework aiding the process of developing and improving a program. The research is geared to provide answers to questions such as: Who is attracted to the pilot programs? How do clients like them? Was it, in the students' opinion, helpful? Would they recommend it to their fellow students? In the fall of 1967 all secondary schools in Wisconsin were invited to submit proposals for pilot programs in vocational agriculture. Nine programs were selected to start in July, 1968. These programs are designed to broaden the agriculture curriculum particularly to the agri-business area. The programs were diverse with some of the programs one year in length to serve seniors, some are three or four years in length, and 57 percent of the students were in large urban schools while the remaining 43 percent were in small rural schools.

Method. Data were collected by mail questionnaire to all students in the pilot programs in the fall of 1968. Data concerning the I.Q. and G.P.A. of all ninth grade vocational agriculture students in the schools having pilot programs were also collected as were three year enrollment histories of each school. Data were analyzed and reported by percentages.

Findings. (1) The pilot programs attract students with non-farm backgrounds. In 1968-69, 18 percent of the students in Wisconsin taking vocational agriculture were non-farm students while the pilot programs enrolled 66 percent in that category. Departments located in small rural schools attracted non-farm students in nearly the same ratio as did large urban departments.

(2) The pilot programs do not employ the traditional notion of a four-year sequence of courses in agriculture as a significant number of students entered vocational agriculture at a point later than ninth grade.

(3) Grading students with farm and non-farm backgrounds in the vocational agriculture pilot programs is a major problem. Though the students had comparable academic performances in non-agriculture courses, the urban students were graded lower in agriculture classes than were the farm students.

(4) Non-farm students enrolled in the pilot agriculture courses with very limited occupational experience.

(5) Students enrolled in the pilot programs on an elective basis and for exploratory reasons. Only one student in three had a definite career commitment.

(6) Previous occupational experience affected career plans. Students having occupational experiences prior to their enrollment in the pilot programs for definite career objective while those without previous occupational experience tended to enroll for exploratory reasons.

(7) Residence affected career plans. Students with farm backgrounds not planning to farm exhibited a preference for non-agricultural jobs, while urban students preferred either conservation or non-agricultural jobs.

(8) Six out of ten students were not consistent when asked to identify a list of four occupations that they were considering.

(9) Students with a farm background and previous occupational experience may possess more vocational maturity than students without such experiences.

(10) The students viewed themselves as possessing high interests, skill and aptitude in outdoor and mechanical vocations.

(11) Seven of the nine pilot schools showed vocational agriculture enrollments as strong as or stronger than the growth in the male population of the school.

(12) The ninth grade students of the pilot program schools have recorded I.Q. scores in the normal or average range but achieve below average academically.

68. THOMPSON, John F., Pilot Program Objectives, Plans and Curriculum Outlines, Pilot Programs in Vocational Agriculture, Report No. 1. Staff Study, 1968. University of Wisconsin, Madison.

Purpose. The purpose of the pilot programs was to broaden the offerings of vocational agriculture in Wisconsin, particularly to the agri-business area.

Method. In the fall of 1967, all secondary schools in Wisconsin were invited to submit proposals for pilot programs in vocational agriculture. Twenty-five proposals were submitted and nine programs were selected to start in July, 1968. Each program was to be tried for three years.

Findings. The nine programs along with a brief description of each follows:

BARRON--Rural community, high school male enrollment of 312. Barron planned a feedmill operators course for seniors to acquaint them with the feedmill business, prepare them to seek employment in that business or to go to a vocational-technical school for mid-management training.

CAMERON--Rural community, high school male enrollment of 108. An agricultural supply, sales and service program was planned at Cameron, open to juniors and seniors.

JANESVILLE--Large urban community with 1755 males in grades 9-12. Janesville planned a four-year program to replace a production oriented semester curriculum. Courses at grade nine and ten are required of all students and entitled respectively, Agriculture Survey, and Biological Agriculture. Specialized courses are offered at the eleventh and twelfth grade levels. These courses include Conservation, Dairy and Meat Animal Science, Soils, Agricultural Power and Mechanics, and Horticulture.

JEFFERSON--A medium sized school in a somewhat rural setting having 368 males in grades 9-12. Jefferson planned an independent study program using the content of sales for selected seniors.

OSHKOSH--Large urban community, with 1640 males in grades 9-12. The production agriculture at Oshkosh was large and well established. The pilot program was designed to parallel the existing one, to prepare students for agri-business. A three-year (grades 10-11-12) program was planned.

PLYMOUTH--A medium sized school in a somewhat rural setting having 427 students in grades 9-12. Within a few miles of Plymouth are two high schools which do not offer vocational agriculture. Interested students from those schools were bussed to Plymouth for a two year program.

ROSHOLT--Small rural school, high school male enrollment of 116. The focus of Rosholt's program was a meat arts course for juniors or seniors.

VERONA--Small school, 11 miles from a large urban center with a senior high male enrollment of 198. Verona planned a senior course entitled "Agricultural Metals Fabrication" which acquainted students with the various occupations in agriculture that are concerned with fabricating metal.

WATERLOO--Small rural school with a 9-12 enrollment of 148 male students. A course in horticulture was planned by Waterloo. The course was open to juniors and seniors who desired to develop a degree of competence for occupational entry as service workers in such establishments as nurseries, garden centers, greenhouses, and golf courses.

69. THOMPSON, Ronald Eugene, The Educational Value of The Ohio State Farm Science Review as Perceived by the Male Clientele. Thesis, M.S., 1968. Library, The Ohio State University, Columbus.

Purpose. To analyze the reactions of commercial farmers, small farmers, part-time farmers, and agricultural businessmen attending The Ohio State University Farm Science Review to the various activities of the Review in terms of their perceived educational value of selected areas of the Review.

Method. Data were collected through an opinionnaire administered by four interview teams located throughout the exhibit area and demonstration plots. A total of 398 persons were interviewed.

Findings. The four largest clientele groups attending the Review, in descending order, were commercial farmers, small farmers, part-time farmers, and agricultural businessmen. Small farmers did not perceive the objective dealing with exhibiting and demonstrating the latest advances in farm power, machinery, and equipment as being fully achieved as did the other clientele groups. The commercial and part-time farmers did not perceive the Review to be disseminating the newest ideas from the College of Agriculture and the Agricultural Research and Development Center. The objectives of displaying current scientific knowledge and recommended practices and displaying products and services to manage a farm or home were being adequately achieved as perceived by the clientele groups.

The ranking, highest rank indicated first, of the overall popularity of the four major areas of the Review were commercial exhibits, commercial demonstration plots, field equipment demonstrations, and educational (departmental) exhibits. The commercial exhibits were perceived to be displaying the newest products available and when and where to use the products, but not how to use the products better. The educational exhibits were helpful to the clientele groups for understanding new ideas, developments, and practices. The equipment demonstrations were providing adequate information about new equipment available and for selecting equipment.

70. TINDALL, Lloyd W., Relation of Class Size and Department Enrollment to Effectiveness of Selected Instruction Media in Vocational Agriculture. Thesis, M.S., 1969. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to determine the relationship of class size and department enrollment to the achievement of students in high school vocational agriculture in Iowa when certain selected instructional media are used. Specific objectives were: (1) to determine the relationships between class size, subject matter area and student achievement using each of the following teaching media: Audio-tutorial, demonstrations, field trips, prepared lesson plans, single concept films, transparencies, and video-tape; (2) to determine the relationships between departmental size, subject matter area and student achievement using each of the aforementioned teaching media.

Method. A random sample which consisted of 42 Iowa high school vocational agriculture departments was selected. From the 42 departments a random selection was made to select six schools, for each of the seven instructional media treatments. Teaching plans and materials were prepared in the areas of animal health for the ninth grade students, fertilizers for the tenth graders, small gasoline engines for the eleventh graders, and farm credit for the twelfth graders. Pre-tests were given prior to the 14-day period of instruction and a post-test was given at the end of the instructional period. The vocational agriculture classes were divided into two class sizes, 5 to 14, and 15 to 25 students per class. The 42 departments were divided into enrollments of 36 to 53, and 54 to 79. Information on the tenure, experience, and education of the instructors was obtained. There were 2271 students participating in the study. The study was conducted as a part of a larger project entitled "An Experimental Evaluation of the Effectiveness of Selected Techniques and Resources on Instruction in Vocational Agriculture."

Findings. A comparison of the gain in achievement of students in animal health in schools stratified by department enrollment and instructional media revealed that the students in the large departments had a mean gain of 10.80 compared to a mean gain of 10.36 for those in small departments. Students in small departments had higher achievement in the commercial fertilizer subject matter area. Higher achievement in small gas engines subject matter was attained by students in the large departments. Students in the large departments achieved higher in the farm credit subject matter area. However, within the limits of this study it was not possible to verify that the differences in achievement of students in the large and small departments were statistically significant.

Student achievement in the animal health subject matter area was higher in the small classes (11.27) than in the large classes (10.12). In the commercial fertilizer subject matter the students in the small classes had higher achievement scores. Students in small classes had overall higher achievement in the small gas engine subject matter area. In the farm credit subject matter area, the students in the larger classes had a total mean gain of 10.76 compared to 8.45 for those in small classes. There was no evidence in this study to verify that the differences in achievement of students in the large and small classes were statistically significant.

71. TOEDTER, Phillip Aaron. An Analysis of Machine Costs in Crop Production on Certain North Central Minnesota Farms Using Machine Time to Allocate Machine Costs. Thesis, M.A., 1968. Library, University of Minnesota, St. Paul.

Purpose. To develop a more accurate procedure for allocating machinery costs to the various crops grown by farmers; a procedure which could become a part of the Minnesota Vocational Agriculture Farm Business Analysis.

Method. By interview the writer obtained data on machinery use practices, width of cut, and speed of machine travel from 31 farmers who were enrolled in farm management classes. These data were used to determine time spent with each machine in production of each farm crop. These machine-use times were used as a criterion for allocation of machine costs to the various crops. Comparisons were made between the machine costs found in this study and machine costs determined by the work unit method in the farm business analysis.

Findings. The machine costs per acre as found by the work unit method of allocation, were at variance with machine costs found in this study. It was found by comparing machine costs from the two analyses for the same farm, that costs allocated by the work unit method were in error 25 percent. This study includes findings on man hours per acre of crop, machine costs per acre, total crop costs per acre, as well as cost of each machine operation per hour, per acre, and per farm. Accurate machine costs as determined by this machine-use time method are important to the farmer in determining which crops are most profitable, whether to raise or buy his feed, and in determining whether to farm his own land or rent it to another operator. It is recommended that the machine-use time method of crop cost allocation developed in this study be programmed for computer analysis and adopted as part of the Minnesota Vocational Agriculture Farm Business Analysis, unless computer costs prove to be prohibitive to the farmer.

72. TREES, Tim P., Opportunities of Establishment of Young Farmers in Farming in the Ventura Community School District. Thesis, M.S., 1969. Library, Iowa State University, Ames.

Purpose. The purposes of the study were to determine: (1) the number of replacement farmers that would be needed in the Ventura Community School District, (2) the number of farm boys who would have an opportunity to farm, and (3) the characteristics of the farms, the farm operators, and the farm families in the district.

Method. Farm operators in the Ventura Community School District were individually interviewed. During the interview a schedule was completed. All farm operators in the district were contacted with 172 operators providing information necessary in completing the schedule.

Findings. Of the 172 operators, 37.2 percent owned all the land that they operated, and 55.9 percent owned all or part of the land that they farmed. As the age of the operators increased the percentage of owners increased. The average tillable acreage in the district was 291.5 acres. Thirty-two percent had 160 acres or less, 36 percent had from 161 to 320 tillable acres, and 32 percent had over 320 tillable acres. Twenty-four percent of all of the farm operators were employed off-farm. Of the 21 to 30 year age group, 63 percent were employed off-farm 90 percent or more of the time. Twenty-three percent of the 31 to 40 age group and 35.2 percent of the 41 to 50 age group were employed off-farm.

Farm operators who had the most education were farming the largest farms. Forty-two percent of the operators in the district and 62 percent of the renters and owner-renters had been enrolled in vocational agriculture in high school. There were only 11 operators in the district under 31 years of age. There were 35 operators in the 31 to 40 year age group. An average of 2.8 operators apparently began farming in the district each year during the past 10 year period. Of the 56 operators who planned to retire before 1976, 44 were older than 50 years of age. Most of the operators anticipated retirement at about age 65 due to social security provisions.

Eleven percent of the operators had sons farming, 7 percent of the operators had sons away from home employed in off-farm agricultural occupations, and 19 percent of the operators had sons employed in nonagricultural occupations.

It was estimated that the average annual need for replacement operators in the Ventura district would be approximately 4.3 operators per year for the next 10 years. If 40 percent of the vocational agriculture graduates, and 40 percent of the sons employed in off-farm agriculture want to farm there would be a shortage of 1.0 operator per year for the next 10 years. It appeared reasonable to assume that opportunities for young men to become established in farming existed in the Ventura Community School District at the time of the study.

73. ULRICH, Allen L. An Analysis of 4-H Member Evaluation in Ohio. Thesis, M.S., 1968. Library, The Ohio State University, Columbus.

Purpose. To identify procedures used in Ohio for evaluating 4-H members and to determine county extension agents' opinions concerning competition, evaluation of 4-H members, and the educational value of selected 4-H activities.

Method. A questionnaire was mailed to all county extension agents employed by the Ohio Cooperative Extension Service. All agents received a questionnaire pertaining to their attitudes about evaluation procedures, competition, educational value of selected 4-H activities, and the rating of the program in their county. Agents in charge of the 4-H program received an additional questionnaire dealing with procedures used in evaluating 4-H members. Questionnaires were returned by 78 percent of all agents and 86 percent of the agents in charge of the 4-H program.

Findings. 4-H advisors evaluated members' progress and helped determine member completion in all counties. Agents favored an evaluation system for members that included a nongraded progress evaluation of members by the 4-H advisor and optional project grading by a judge. Home economics agents favored the total nongraded approach much more strongly than did agricultural and 4-H Club agents. Most agents favored optional competition for members rather than required competition. Changes in evaluation planned for the future include optional competition and nongraded progress evaluation with more emphasis on the 4-H advisor as the primary evaluator.

Minor projects, such as rope and vegetable gardening, need to be evaluated carefully as to their educational value. Agents were of the opinion that in activities rated most educational, such as demonstration contests, members receive less recognition than in activities rated less educational. Agents felt more emphasis should be placed on individual growth and citizenship training than is the current practice.

In a majority of the counties, project books were graded with the grading process slowly shifted from the county extension agent to the 4-H advisor. Agents in charge of the 4-H program favored the evaluation of projects by persons other than the 4-H advisor.

74. VANDEWALLE, Virgil Wallace, A Study and Resource Unit for Teaching an Introduction to Farm Management Principles. Colloquium Paper, M.S., 1969. Department of Agricultural Education, North Dakota State University, Fargo.

Purpose. To develop a resource teaching unit adapted for use in high school Vocational Agriculture classes in Vocational Agriculture III and IV.

Method. The writer developed the resource unit in consultation with farm management specialists in the Department of Agricultural Economics, and the staff members of the Department of Agricultural Education, North Dakota State University.

Findings. The major aim of the unit is to develop an understanding and appreciation of the economic principles used in solving farm management problems in modern agriculture and to develop abilities needed to make wise decisions concerning the organization and management of a farm business. Sixteen jobs are used by the author in developing the objectives proposed for the course. The plan for each job includes an objective, interest approach, guide questions, references, teaching activities and key facts.

75. VIRTA, Allan Andrew, An Analysis of Essential Competencies Needed by Workers in the Ornamental Horticulture and Greenhouse Industries. Dissertation, Ph.D., 1968. Library, University of Minnesota, Minneapolis.

Purpose. The study was made to ascertain the horticulture competencies essential to employees in the ornamental horticulture and greenhouse industries.

Method. An instrument of 80 items of horticulture competencies in areas of general horticulture, floriculture, soil and fertilizer, and agricultural chemicals was administered by personal interview to respondents in the industry at five levels of responsibility: employers, sales supervisors, foremen, sales clerks and workers.

Respondents in supervisory positions were asked to indicate, by means of a five choice response for each item, the level of competence expected of technicians in the immediate lower echelon.

The instrument was administered to 200 interviewees included in a selected sample of 20 ornamental horticulture and 20 greenhouse businesses.

The significance of the differences in responses between ornamental horticulture and greenhouse respondents for each item was determined by the one-tailed Z test for proportions.

Findings. Significant differences were found in the competency levels needed by employees in greenhouses as compared to employees in ornamental horticulture in four employee categories. No significant differences were found in the area of general horticulture and soil and fertilizer at the sales clerk level of responsibility. These areas were marked by extremely low assessment of needs for sales clerks.

Employers in both of the groups studied expected their supervisory personnel to have a high level of competency. Foremen and sales supervisors, however, gave an extremely low assessment of the level of competence needed by workers and sales clerks.

76. VOSSLER, Leo, The Extent of Employment in Production Agriculture, Agricultural Business, and Production Agriculture in the Parshall, North Dakota, Community and the Attitude of Persons in These Occupations Toward Various Levels of Educational and Work Experiences. Colloquium Paper, M.S., 1969. Department of Agricultural Education, North Dakota State University, Fargo.

Purpose. To secure selected information about persons engaged in managerial positions in production agriculture, agricultural business and production agriculture and to examine their attitudes toward formal education and work experiences.

Method. A questionnaire was developed to secure data. All persons living in the school district who were engaged in these occupations were contacted by mail or in person. Responses were received from 154 individuals.

Findings. A total of 70 percent of the farmers, 68 percent of the agri-business men and all of the professional agriculturists were in the 41-60 age group.

Twelve years of formal education had been completed by 62.1 percent of the farmers, 77.3 percent of the businessmen, and all of the professional agriculturists.

Farmers and ranchers rated farm background very important 108 times. Previous work experience was rated very important 71 times; high school vocational agriculture classes received 44 such ratings and adult farmer classes were rated very important 39 times.

Comments made by farmer respondents indicated a strong need and desire for farm management education for adult farmers.

77. WAGONER, Richard E., Agricultural Equipment Mechanic Education Needed by Prospective Mechanics in Northwest Iowa. Thesis, M.S., 1968. Library, Iowa State University, Ames.

Purpose. The purposes of the study were to: (1) identify young men who were living on farms within the four northwest counties in Iowa who desired training in agricultural equipment mechanics, (2) determine the desire or felt need for additional training in agricultural equipment mechanics, and (3) determine the level of competence possessed in understandings and abilities related to agricultural equipment mechanics.

Method. Names and addresses of the young men who were prospective mechanics were secured from vocational agriculture instructors in the ten high schools of the four-county area. Three hundred forty-eight questionnaires were mailed to the individuals identified by the instructors. Two hundred twenty-one of the useable 302 questionnaires (73 percent) were returned.

Findings. The 221 respondents ranged in ages from 17 through 22 years. All of the young men lived on farms at the time of the study. Only 34 of the respondents had not had at least one semester of vocational agriculture in high school. One hundred forty-three (64.7 percent) indicated that they would be interested in taking additional training in agriculture equipment mechanics, while only 35.3 percent (78) indicated no interest in additional training. Seventy-two (32.5 percent) of the group reported that they had had no training in agricultural machinery repair, adjustment, or maintenance.

Young men who had completed the most vocational agriculture constituted the largest percent of those desiring additional training. Previous training in agricultural equipment mechanics was highly correlated, (.27) significant at the 1 percent level, with desire for additional training. Over one-half (54 percent) of the young men desiring additional training in agricultural equipment mechanics indicated they would take one or two years of training. Approximately 60 percent of the individuals desiring additional training reported they would prefer to travel 50 miles or less for the training.

The understandings, mechanical abilities, and management abilities related to agricultural equipment mechanics which were rated as having the highest mean possessed level of competency included: (1) the principles of operation of farm machines, (2) types and size of machines used in your area, (3) the operation of gasoline engines, (4) read and understand written materials, (5) interpret and follow service manuals for proper machine adjustment and maintenance, and (6) use an arc or oxy-acetylene welder.

Those competencies rated as having the lowest mean possessed level by the total sample included: (1) remove and install cylinder sleeves, (2) identify oversize pistons, (3) use a micrometer and other precision measuring devices, (4) install bearing inserts, (5) remove and install valves, and (6) the operation of diesel engines.

78. WALKER, Eugene H., A Study of the Employment Status of Area Vocational-Technical School Graduates in Agriculture Education for the Years 1966, 1967, 1968. Master's Report, 1969. Library, Kansas State University, Manhattan.

Purpose. To determine to what extent the Kansas area vocational-technical schools had been training young people for a changing agriculture industry and an attempt to find out where the area school graduates for the three year period of 1966 to 1968 had been employed. It was felt by the writer that the findings of this report could be instrumental in helping to develop more effective agriculture programs in the area vocational-technical schools of Kansas.

Method. Data for this study were obtained through selected literature found in the Kansas State University library, Kansas State Teachers College library, and the Flint Hills Area Vocational-Technical School library. Additional data were obtained through a survey of the agriculture and related instructors located in the area vocational-technical schools of Kansas. A total of eight schools returned questionnaires. Each school was questioned on how many graduates they had from their programs and where they had gone for employment.

Findings. There was found to be a total of 250 graduates from agriculture programs in the area schools over the three year period. Fifty-two percent of these graduates were employed in farming and related occupations, 17 percent had gone on to enroll in a college, 6 percent attended trade or business schools, 4 percent were working in nonfarm occupations and 18 percent had been in the military service.

In essence, this study revealed the direction in which more specialization could be implemented in our area school curricula and also the definite proof of the type of employment those graduates had received.

79. WOOD, Billy Lee, The Role of Area Vocational-Technical Schools and High Schools in Teaching Vocational Agriculture to High School Students. Master's Report, 1969. Library, Kansas State University, Manhattan.

Purpose. To survey the opinions of school administrators, agriculture teachers, school board members, school patrons and managers of agricultural businesses connected with selected area vocational-technical schools and their companion feeder high schools as to their respective roles they felt each school program should play.

Method. The study included 22 school district communities in Kansas. Eleven of the communities were selected because they were served by an area vocational-technical school that was offering vocational agriculture programs to the high schools in their area. The other eleven communities were selected from districts offering vocational agriculture in the high school only. Each vocational-technical school was matched with a high school of similar size, geographical area and school classification.

One hundred ten questionnaires were mailed to selected individuals in all of the 22 school districts. Two follow-up mailings were made in order to get as complete a sample as possible. In addition to these mailings, 55 letters were sent to individuals representing the 11 area vocational-technical schools, and another 55 sent to the 11 high school districts.

Findings. This study is based on a return of 86 percent of the questionnaires. The majority of all of the respondents indicated that the area vocational-technical school was the best place to offer programs for veterinarian helper, custom spray operator, agriculture business manager, farm power repairman, and farm machinery repairman. Conversely, they felt that the high school was a better place for instruction in basic agricultural management principles, basic animal science, basic crop science, academic development as well as leadership training.

A division of opinion came when asked to evaluate the best place for basic farm power maintenance and mechanics. The area vocational-technical school respondents felt they were better equipped, whereas the high school respondents felt they were better able to handle this instruction.

80. WOODIN, Ralph J., Supply and Demand for Teachers of Vocational Agriculture in the United States for the 1968-69 School Year. Staff Study, 1969. The Ohio State University, Columbus.

Purpose. The major purpose was to determine the number of teaching positions in vocational agriculture in high schools in the United States and the number of graduates of agricultural education programs who were qualified to fill such positions. This was the third annual nationwide study of supply and demand of teachers.

Method. Each state supervisor of vocational agriculture was sent a questionnaire regarding teaching positions in his state on August 1, 1968. Chairmen of all teacher education departments preparing teachers of vocational agriculture were asked to indicate the number of graduates and the positions which they had assumed by August 1, 1968. Data were assembled showing the number of teaching positions, the extent of the shortage of teachers, the types of teaching positions, and the number of positions by states. The occupations of the 1968 graduates in agricultural education were shown, as well as the supply of graduates from each state.

Findings. An indication of the persistent teacher shortage is shown by the fact that on August 1, 1968, there were 141 teachers needed but not available. At that time 65 departments could not open because of the shortage of teachers. The number of persons qualified for teaching vocational agriculture grew from 1,038 in 1965 to 1,314 in 1968, representing an increase of 276.

The percentage of agricultural education graduates entering teaching during the past three years showed little change. Apparently, about 60 percent of the graduates can be expected to enter teaching. This year the largest number of those not entering teaching entered the Armed Forces, with a total of 10 percent entering the service. Other first occupations included graduate school, other teaching positions, and related agricultural jobs.

A record was set in 1968 in terms of new positions added during the year. A total of 323 new positions were added. Generally these new positions represent the opening of new departments or the addition of teachers to form multiple-teacher departments.

81. ZAREIAN, Soleiman, An Investigation and Development of a Technical Curriculum for Technician Preparation in Agricultural Mechanization for Iran. Dissertation, Ph.D., 1969. Library, Michigan State University, East Lansing.

Purpose. The purpose of this study was to formulate a curriculum, using data and information obtained through a survey and a review of literature, for a two-year post-high school agricultural mechanization technician training program in Iran.

Method. A jury of experts in the area of agricultural power and machinery, consisting of eight major companies manufacturing agricultural machinery, eight teachers teaching two-year post-high school farm equipment service and sales programs, and eight educators engaged in teaching agricultural mechanization at Michigan State University was selected. The members of the jury rated a list of competencies which were developed after the author had analyzed literature appropriate to the field, including research already completed in the area of agricultural power and machinery. The jury members expressed their opinions by rating each of the listed competencies as to how important they thought it was for an agricultural mechanization technician to possess that competency in dealing with agricultural power and machinery in Iran. A four-point scale of importance was used in rating the list of competencies. The weighted mean was calculated for each item to describe responses by sub-juries and for the total jury, and to establish and index of importance for each item. The competencies rated "important" by over 80 percent of the jury members were considered in constructing the technical curriculum.

Findings. The findings of the study could be summarized as follows: (1) the qualifications of a technician were identified as to necessary competencies to adjust, service, and maintain all agricultural machinery and equipment in the shop and/or on the field, (2) he should have the ability to perform minor repair jobs for all agricultural machinery, (3) he should be able to make major repairs in some subareas such as small engines, which do not require skilled mechanics, (4) he would not be required to overhaul gas engines, diesel engines or harvest machinery, and (5) he should have some background in basic and elementary science, including applied electricity, mechanics, and mathematics. All of the above competencies (except those in number 4) were identified as being essential to the performance of agricultural machinery activities by a technician. Using the data and the findings of the study, a curriculum for a two-year post-high school agricultural mechanization technician training program in Iran was developed. The curriculum consisted of thirteen courses as follows: (1) applied mathematics, (2) applied electricity, (3) applied mechanics, (4) service shop, (5) small engines, (6) farm tractors, (7) gas engines, (8) diesel engines, (9) planting and tillage equipment, (10) harvesting machinery, (11) hydraulic systems, (12) power testing unit, and (13) seminar.

82. ZIMMER, Theodore Ayres, Occupational and Educational Characteristics of Male Graduates of Non-Metropolitan Ohio Schools in Which Vocational Agriculture was Offered. Dissertation, Ph.D., 1969. Library, The Ohio State University, Columbus.

Purpose. To compare the occupational and educational experiences of vocational agriculture graduates, vocational graduates other than vocational agriculture, and non-vocational graduates of non-metropolitan high schools.

Method. Cluster sampling techniques were used to select respondents. Twenty-nine high schools offering vocational agriculture were randomly selected from the non-metropolitan high schools in Ohio. The male graduates in 1967-68 from these schools were stratified into the following groups according to the program of study pursued in high school: vocational agriculture, other vocational, and non-vocational. Approximately nine months following graduation, questionnaires were sent to all vocational agriculture graduates in the sample schools, to all other vocational graduates, and to a random sample of non-vocational graduates. A total of 771 questionnaires were mailed. Eighty-four percent of the questionnaires were returned.

Findings. Fewer of the non-vocational graduates were in the Armed Forces than were vocational agriculture and other vocational graduates. Fewer other vocational graduates entered some form of trade training than was true for the other two groups. Ninety percent of the non-vocational graduates not in the Armed Forces continued their formal education. A higher percentage of the non-vocational graduates reported employment at the unskilled level than did either of the other two groups of graduates.

A higher percentage of other vocational graduates reported earning $60 or less per week. In comparison to the other two groups, a slightly higher percentage of the vocational agriculture graduates reported earnings of $100 or more per week.

There were essentially no differences between the three groups as to whether graduates were seeking different employment. Generally, the high school program pursued seemed unrelated to later employment. When aspects of background and employment during high school were related to graduates' current employment, vocational club leadership, type of vocational club membership, and hours of high school orientation for employment did not appear to be associated with current employment of graduates. Hours of non-school supervised work experience while in high school appeared to be associated with reasons for seeking employment and leaving employment.

Vocational agriculture graduates classified their work at a higher level, drove farther distance to work, fewer left employment because of no work, and fewer reported employment as being completely unrelated to their high school program. Relatively more non-vocational graduates indicated that their training was vocationally inadequate, earned lower wages, obtained part-time work, were in the top quarter of their graduating class, and more went to college. Other vocational graduates had a higher percentage in the Armed Forces, a higher percentage reported earning $60 or less per week, a higher percentage were in the lower three-quarters of the graduating class, a much lower percentage were full-time students, and they changed jobs less frequently than graduates in the other two categories.

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*The summaries are arranged alphabetically by author and numbered consecutively. Numbers refer to the number of the study rather than to page numbers.